523-0005-010

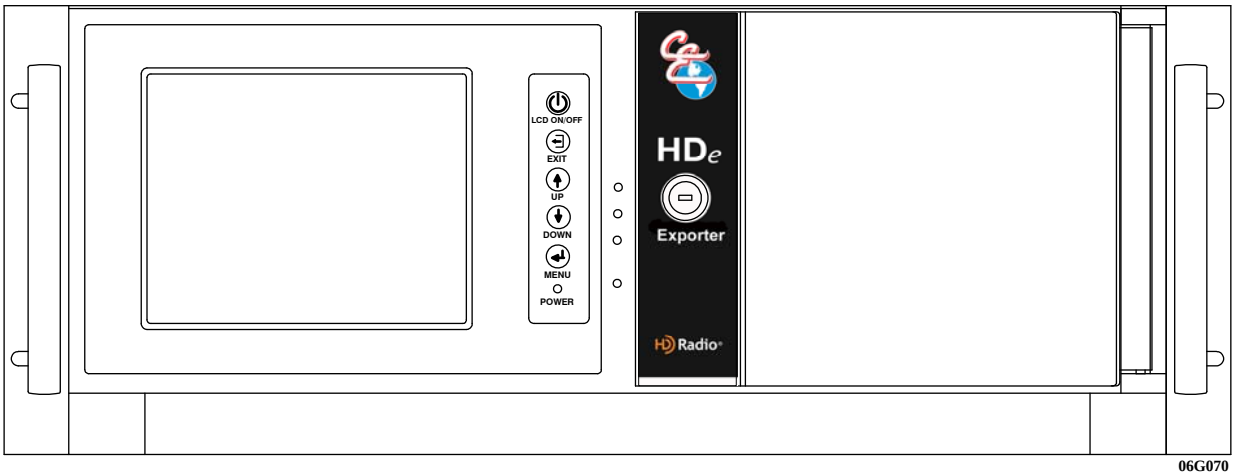
Continental Electronics

HD Radio

HD Exporter User's Manual

Software Release 2.3.3

P/N 202200-4



06G070

COPYRIGHTED© 2007 BY
CONTINENTAL ELECTRONICS
4212 S. BUCKNER BLVD.
DALLAS, TEXAS 75227

(214) 381-7161 www@contelec.com FAX: (214) 381-4949

ISSUED – 23 JANUARY 2007

Copyright © iBiquity Digital Corporation.
All rights reserved.
The contents of this publication may not be reproduced in any media without the express written permission of iBiquity Digital Corporation.

TRADEMARKS

The iBiquity Digital logo and “iBiquity Digital” are registered trademarks of iBiquity Digital Corporation. “iBiquity”, “HD Radio”, “HD BML”, “HDC”, and the HD Radio logo are trademarks of iBiquity Digital Corporation.
All other trademarks, whether claimed or registered, are the exclusive property of their respective owners.

iBiquity Digital Corporation
8865 Stanford Boulevard
Suite 202
Columbia, MD 21045
410–872–1530 (Phone)
410–872–1531 (FAX)
info@ibiquity.com

Table of Contents

Contents

1 SCOPE 1
1.1 Manual Overview 1
1.2 Screen Navigation 1
2 GENERAL INFORMATION 1
2.1 Physical Description 1
2.2 Operating Characteristics 1
3 INSTALLATION 1
3.1 Unpacking And Inspection 1
3.2 Rack Mounting 2
4 HD EXPORTER CONNECTIONS 4
4.1 HD Exporter Interface Requirements 4
4.2 Interface Description 6
4.3 HD Exporter Front Panel Controls and Indicators 7
5 ABBREVIATIONS AND CONVENTIONS 8
5.1 Abbreviations and Acronyms 8
5.2 Presentation Conventions 8
6 HD EXPORTER OPERATING PROCEDURES 9
6.1 Startup 9
6.1.1 Startup Non-Embedded 9
6.1.2 Startup Embedded 10
6.2 Audio Diversity Blend Delay Adjustment 10
6.3 Log Levels 10
6.4 Shutdown Procedure Non-embedded 11
6.5 Shutdown Procedure Embedded 11
6.6 Remote GUI Control 11
6.7 Console User Interface 16
7 FRONT PANEL DESCRIPTION 17
7.1 Graphical User Interface Display/Indicator Definitions 18
7.1.1 G1 Exporter Platform Indicator 19
7.1.2 Station Call Sign 20
7.1.3 Band 23
7.1.4 Status Upper Section (Main Screen Upper Right) 23
7.1.5 Status Lower Section (Main Screen Upper Right) 23
7.1.6 Date and Time 24
7.1.7 Exporter Status Bottom Right 25
7.2 System Tab Control Buttons 25
7.2.1 Shutdown 25
7.2.2 Configuration 26

7.2.3 Versions 29
7.2.4 Configure Password 31
7.2.5 Command 31
7.2.6 GPS Data 37
7.2.7 Local Time 39
7.3 Log Tab Control Buttons 39
7.3.1 Levels 40
7.3.2 Parameters 41
7.3.3 System Status 43
7.4 Platform Tab Control Buttons 43
7.4.1 Exciter Link (E2X) Config 44
7.4.2 Exciter (E2X) Link Status 45
7.4.3 Exporter I2E Link Status 47
7.5 Station Tab Control Buttons 49
7.5.1 Station Information Schedule 49
7.5.2 Station Information 51
7.5.3 Station Default PAD 51
7.5.4 Station Program Control 55
7.6 Audio Tab Control Buttons 55
7.6.1 Audio Levels 56
7.6.2 Analog Audio Diversity 57
7.6.3 Audio Bypass 59
7.6.4 Audio Blend Control 59
7.6.5 Audio Level Control 59
7.7 Utility Tab Control Buttons 60
7.7.1 Screen Resize 60
7.7.2 Fonts 62
7.7.3 Virtual Chat 63
7.7.4 Activity Monitor 64
7.7.5 Up Time 64
7.7.6 Restart X Window Server 65
8 MAINTENANCE 66
9 PARTS LISTS 66
9.1 Introduction 66
9.2 Index Of Parts Lists 66
9.3 Reference Designations (REF DES) 66
9.4 Quantity 66
9.5 Cage Code 66
9.6 Part Number 66
9.7 Description 66
9.8 Illustrations 67
10 DRAWINGS 76

List of Figures

Figure 4-1 HD Exporter Connection Diagram 5
Figure 4-2 HD Exporter Rear Panel 5
Figure 4-3 HD Exporter Front Panel 6
Figure 6-1 Exporter Shutdown Control Screen 11
Figure 6-2 Linuxconf Main Screen 12
Figure 6-3 Linuxconf Networking Screen 12
Figure 6-4 Linuxconf IP Setup Screen 13
Figure 6-5 Linuxconf Routing and Gateways Screen 13
Figure 6-6 Linuxconf 2nd Page Routing and Gateways 14
Figure 6-7 Linuxconf Default Gateway Setup 14
Figure 6-8 Linuxconf Final Config Screen 15
Figure 6-9 VNC Authentication Screen 15
Figure 6-10 Remote HD Exporter Main Menu Access Screen 16
Figure 7-1 Exporter GUI Interface System Tab 18
Figure 7-2 Exporter GUI Activity Monitor 19
Figure 7-3 Version Properties Screen 20
Figure 7-4 Station Information Screen 20
Figure 7-5 Numeric Keyboard 21
Figure 7-6 Universal Call Sign and Station Slogans 22
Figure 7-7 Alphanumeric Keyboard 23
Figure 7-8 Local Time Insertion Screen 24
Figure 7-9 System Status Log Screen 25
Figure 7-10 Exporter Shutdown Control Screen 26
Figure 7-11 System Configuration Screens 28
Figure 7-12 Channel Configuration Screen 29
Figure 7-13 Versions Screen 30
Figure 7-14 Versions More Screen 30
Figure 7-15 Password Screen 31
Figure 7-16 System Command Screen 32
Figure 7-17 Command Results Display 33
Figure 7-18 Browse Screen 33
Figure 7-19 Virtual Keyboard 34
Figure 7-20 Xterm Window 34
Figure 7-21 Gvim Editor 34
Figure 7-22 Linuxconf Screen 35
Figure 7-23 Graphical Calculator Screen 35
Figure 7-24 Top Display Screen 36
Figure 7-25 ifconfig Screen 36
Figure 7-26 Dialog setemb Screen 37
Figure 7-27 Dialog setdev Screen 37
Figure 7-28 GPS Data Screen 38
Figure 7-29 System Reset Warning Screen 38

Figure 7-30 Exporter GUI Interface Log Tab 39
Figure 7-31 Log Level Screen 41
Figure 7-32 Select Level Screen 41
Figure 7-33 Log Parameters Screen 43
Figure 7-34 Exporter GUI Interface Platform Tab 44
Figure 7-35 E2X Configuration Menu 45
Figure 7-36 E2X Link Status Window 46
Figure 7-37 Setting the message buffer size. 47
Figure 7-38 EL Activity Monitor Screen 48
Figure 7-39 Exporter GUI Interface Station Tab 49
Figure 7-40 Station Information Schedule Screen 50
Figure 7-41 Station Information Payload Selection 50
Figure 7-42 Incompatible payload option warning message 51
Figure 7-43 Station Default PAD (General Tab) 51
Figure 7-44 Station Default PAD (Comment Tab) 52
Figure 7-45 Station Default PAD (Commercial Tab) 53
Figure 7-46 Station Default PAD (Last Message Sent Tab) 53
Figure 7-47 PAD Information Sent acknowledgement message. 54
Figure 7-48 PAD Configuration update acknowledgement. 54
Figure 7-49 MPS PAD Control screen. 55
Figure 7-50 Station Program Control screen 55
Figure 7-51 Exporter GUI Interface Audio Tab 56
Figure 7-52 Audio Levels Screen 57
Figure 7-53 Analog Audio DiversityScreen 58
Figure 7-54 Exporter GUI Interface Utility Tab 60
Figure 7-55 Screen Resize Screen 61
Figure 7-56 Screen Size Test Screen 61
Figure 7-57 Apply Reboot Screen 62
Figure 7-58 System Fonts Screen 62
Figure 7-59 Pick a Font Screen 63
Figure 7-60 Virtual Chat Screen 64
Figure 7-61 Up Time Information Screen. 65

List of Tables

Table 4-1 Interface Description. 6
Table 7-1 GPS Cabling Delays 38
Table 9-1 Index of Parts Lists in Ref. Des. Order. 67
Table 10-1 Index of Drawings in Numerical Order. 76

1 Scope

1.1 Manual Overview

This manual provides information required to install, operate and maintain the Continental Electronics HD Exporter. Included are descriptions of all screens, controls, indicators, external connections, operating procedures, and software upgrades for the HD Exporter.

1.2 Screen Navigation

Control and status indication is accomplished through the use of an LCD monitor. The Main screen, Figure 7-1, is displayed upon startup. Navigation to sub-screens is accomplished by using the keyboard/touch pad located in the pullout drawer under the LCD monitor. Control of the LCD monitor is accomplished using the buttons on the right side of the screen as described in Paragraph 4.3.

2 General Information

2.1 Physical Description

The HD Exporter assembly is housed in a standard 19-inch rack mounted industrial computer chassis. It measures 19 in. (48.26 cm) wide, 7 in. (17.78 cm) high and 18.9 in. (48 cm) deep, and weighs approximately 45 pounds (20.4 kg). In addition, the chassis requires a 7-inch panel space.

A 6.4-inch liquid crystal display (LCD) monitor is mounted on the left side of the front panel. On the right side is a hinged, lockable access door behind which is the unit on/off power switch, a 3-1/2-inch floppy drive and a 52X CD-ROM drive.

2.2 Operating Characteristics

The following operating characteristics apply to the HD Exporter.

Temperature: +32 °F (0 °C) to +122 °F (50 °C)

Humidity: Up to 95% relative humidity, non-condensing

3 Installation

3.1 Unpacking And Inspection

Remove the HD Exporter from its shipping crate and packing material. Remove top cover by removing the retaining screws. Inspect the unit for loose screws and fasteners. Ensure that all circuit cards are properly seated, and cable and wiring connections are tight. Replace top cover and tighten retaining screws when inspection is complete. If any item is damaged in transit, note the damage on the shipping documents and immediately file a freight claim. All boxes and packing material should be retained for the freight inspector.

Refer to wirelist WL200000-4 that follows Section 3 for all internal interface connections and to facilitate reconnection of loose cabling/wiring.

3.2 Rack Mounting

WARNING: The HD Exporter weighs approximately 45 pounds (20.4 kg). Use two people to mount the unit to the rack. Failure to comply may result in injury to personnel.

CAUTION: Ensure cooling air inlet/outlet openings are not obstructed when the HD Exporter is in operation. The air inlet opening is on the top panel. The air outlet openings are on the rear panel. Maintain 1U (1.75") of space above top panel. Failure to comply may result in equipment overheating.

NOTE: The HD Exporter should be mounted in the rack at or near eye level for optimum display viewing. Allow adequate space behind the rear panel for cable connections.

While Person A supports the HD Exporter at the desired mounting height, Person B should install and tighten the four front panel mounting screws.

INTRA-UNIT WIRING LIST **DATE: 9/26/6**
WIRELIST NO:WL202200-4

ECN NO: **REV: -**

ASSY NO: 202200-4 **REVISED: 2006/11/21**
PL NO: PL202200-4
SCHEMATIC: 202201-4

WIRE NO	WIRE SIZE or TYPE	FROM	TO	WIRE LENGTH	REMARKS
W1	NOT USED				
W2	NOT-USED				
W3	NOT USED				
W4	Coaxial	A10CP4-'10MHz'	A8-J16	2.5 FT	
W5	Coaxial	A8-J22 (SMA)	W39C-P2	1.5 FT	CEC P/N 426-7039-040
W6	Coaxial	Rear Panel -'GPS ANT'	A3-GPS ANT	2 FT	
W7	Coaxial	A3-10MHz	A8-J6	1.5 FT	
W8	Coaxial	A3-1PPS	A8-J5	1.5 FT	
W9	Coaxial	A8-J14	A10CP6-'1PPS'	2.5 FT	
W10	NOT USED				
W11	NOT USED				
W12	Ribbon	A3-SERIAL PORT	A1-COM1	2 FT	GPS DATA CEC P/N 202207-1
W13	PS2	A1-MOUSE	W14	1 FT	
W14	PS2	W13 & W15	PC CHASSIS-PS2	1 FT	SUPPLIED WITH CHASSIS - 'Y' Cable
W15	PS2	A1-KEYBOARD	W14	1 FT	
W16	NOT USED				
W17	IDC 40 (ribbon)	A1-IDE2	A7-IDE		SUPPLIED WITH MOTHERBOARD

INTRA-UNIT WIRING LIST **DATE: 9/26/6**
WIRELIST NO:WL202200-4

ECN NO: **REV: -**

ASSY NO: 202200-4 **REVISED: 2006/11/21**
PL NO: PL202200-4
SCHEMATIC: 202201-4

WIRE NO	WIRE SIZE or TYPE	FROM	TO	WIRE LENGTH	REMARKS
W18	CAT5	A10CP9-'ETHERNET'	A1-LAN	1 FT	
W19	18 AWG	A8-J18	ATX POWER SUPPLY - P16		P/O CHASSIS POWER SUPPLY
W20	NOT USED				
W21	VGA	A1-VGA PORT	PC CHASSIS - VGA PORT	1 FT	SUPPLIED WITH CHASSIS
W22	22 AWG	W22-P1	A3-POWER	4 in	GPS POWER CEC P/N 202206-1
		W22-P2	ATX POWER SUPPLY - P15	4 in	
W23	IDC 40 (ribbon)	A1-IDE1	A9-IDE		SUPPLIED WITH MOTHERBOARD
W24	18 AWG	A7 - POWER	ATX POWER SUPPLY - P7		P/O CHASSIS POWER SUPPLY
W25	18 AWG	A9 - POWER	ATX POWER SUPPLY - P8		P/O CHASSIS POWER SUPPLY
W26	Audio	A10 -'DIGITAL INPUT'	A8-J7		CEC P/N 202227-1
W27	NOT-USED				
W39		W39-P1	A6		CEC 202243-1
W39A		W39A-P3	A8-J10		SEE NOTES 1 & 2
W39B		W39B-3	A10CP2-3		
		W39B-2	A10CP2-2		
		W39B-1	A10CP2-1		
W39C		W39C-P2	W5-BNC		
A1J17 - FRONT PANEL CONNECTOR					
	18 AWG TP	A1J17-5	CHASSIS '**LAN**'-BLK WIRE		HD ACCESS LIGHT, supplied w/chassis
	18 AWG TP	A1J17-3	CHASSIS '**LAN**'-RED WIRE		HD ACCESS LIGHT, supplied w/chassis
	18 AWG TP	A1J17-8	CHASSIS '**POWER SW**'-RED		ATX POWER SW, supplied w/chassis
	18 AWG TP	A1J17-10	CHASSIS '**POWER SW**'-BLK		ATX POWER SW, supplied w/chassis
	18 AWG TP	A1J17-7	CHASSIS '**RESET SW**'-GRN		RESET SWITCH, supplied w/chassis

INTRA-UNIT WIRING LIST **DATE: 9/26/6**
WIRELIST NO:WL202200-4

ECN NO: **REV: -**

ASSY NO: 202200-4 **REVISED: 2006/11/21**
PL NO: PL202200-4
SCHEMATIC: 202201-4

WIRE NO	WIRE SIZE or TYPE	FROM	TO	WIRE LENGTH	REMARKS
	18 AWG TP	A1J17-9	CHASSIS '**RESET SW**'-WHT		RESET SWITCH, supplied w/chassis
MOTHERBOARD(A1) POWER					
		A1-20PIN MAIN POWER	ATX POWER SUPPLY - P1		P/O CHASSIS POWER SUPPLY
		A1-4PIN +12V POWER	ATX POWER SUPPLY - P2		P/O CHASSIS POWER SUPPLY
A10B1 FAN ASSEMBLY					
A10B1	P/O A10B1	A10B1P1	ATX POWER SUPPLY - P12	B1 POWER 1	CEC P/N 202213-
NOTES:					

NOTE 1: W2 must be assembled during the final assembly stage of the HD Exporter/Signal Generator System.
NOTE 2: W39 is supplied with A6(the audio card). The XLR(M) on W39 must be cut and the loose wires soldered to A10CP2 per wirelist.

4 HD Exporter Connections

This section contains a description of the HD Exporter and provides diagrams and instructions for connection in a broadcast system.

4.1 HD Exporter Interface Requirements

Figure 4-1 is the HD Exporter connection diagram showing the connections between the HD Exporter and external equipment. Figure 4-2 shows the HD Exporter rear panel configuration; Figure 4-3 shows HD Exporter front panel controls and indicators. Connect the signal and power cables to the rear panel. The HD Exporter contains a power supply which operates on any voltage from 95 - 264 Vac and any frequency from 47 – 63 Hz.

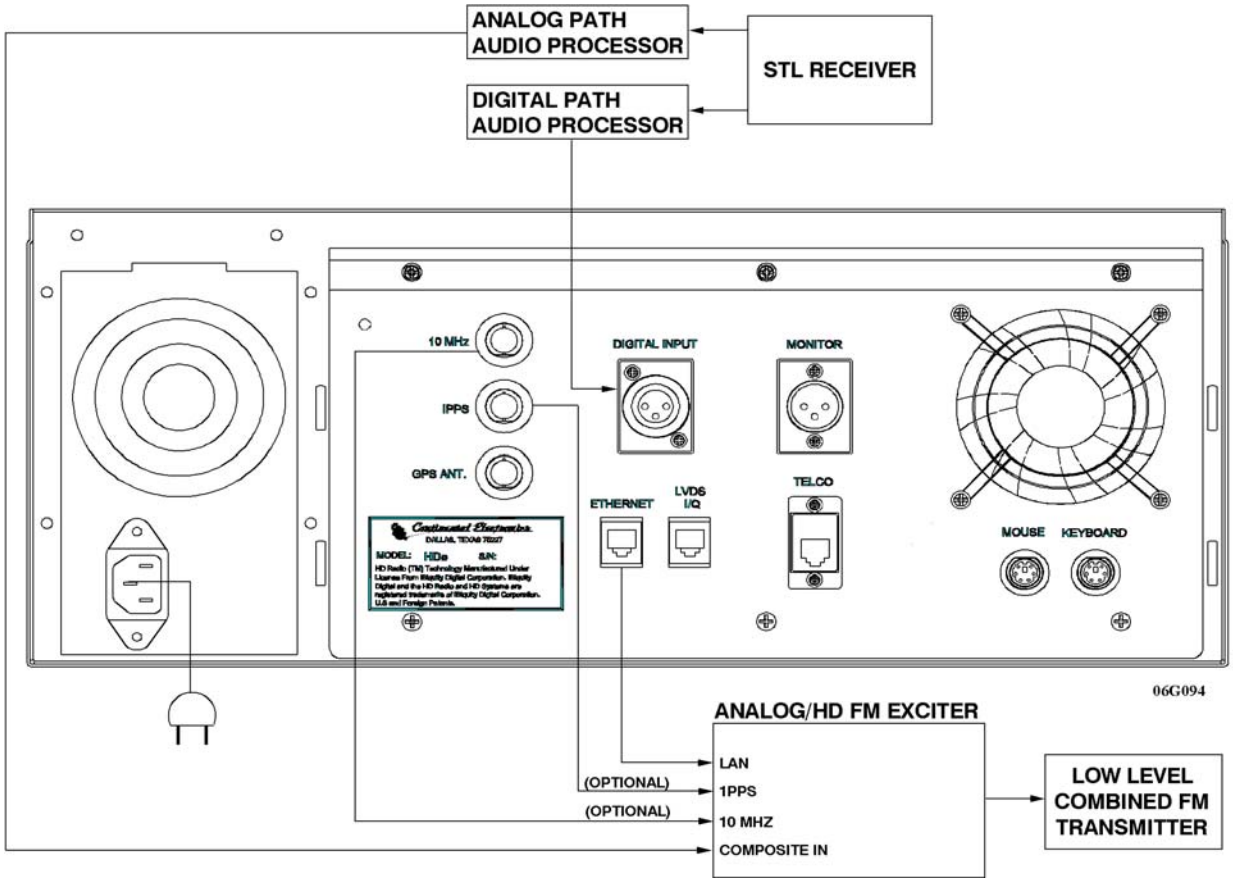


Figure 4-1 HD Exporter Connection Diagram

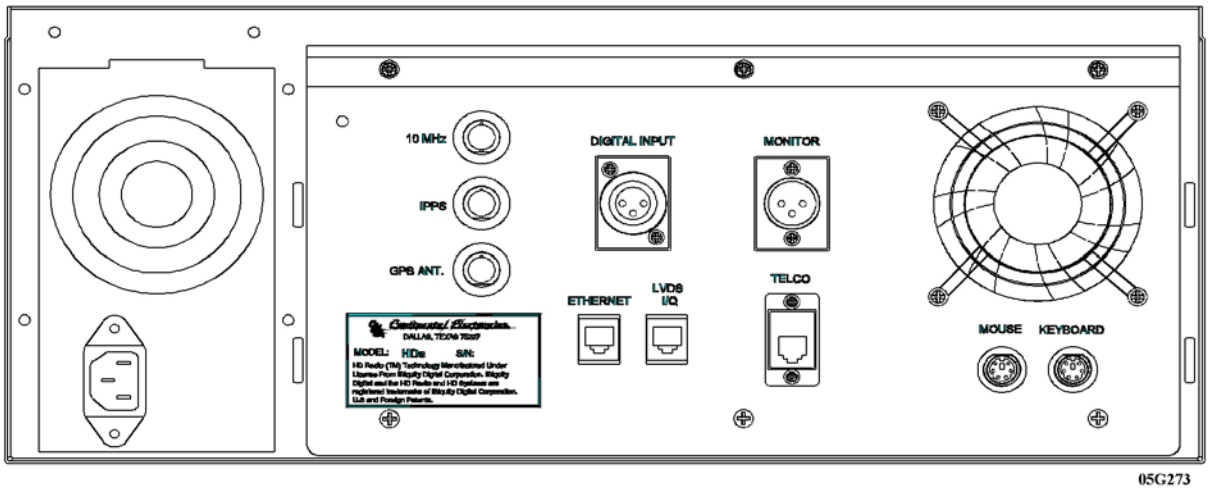


Figure 4-2 HD Exporter Rear Panel

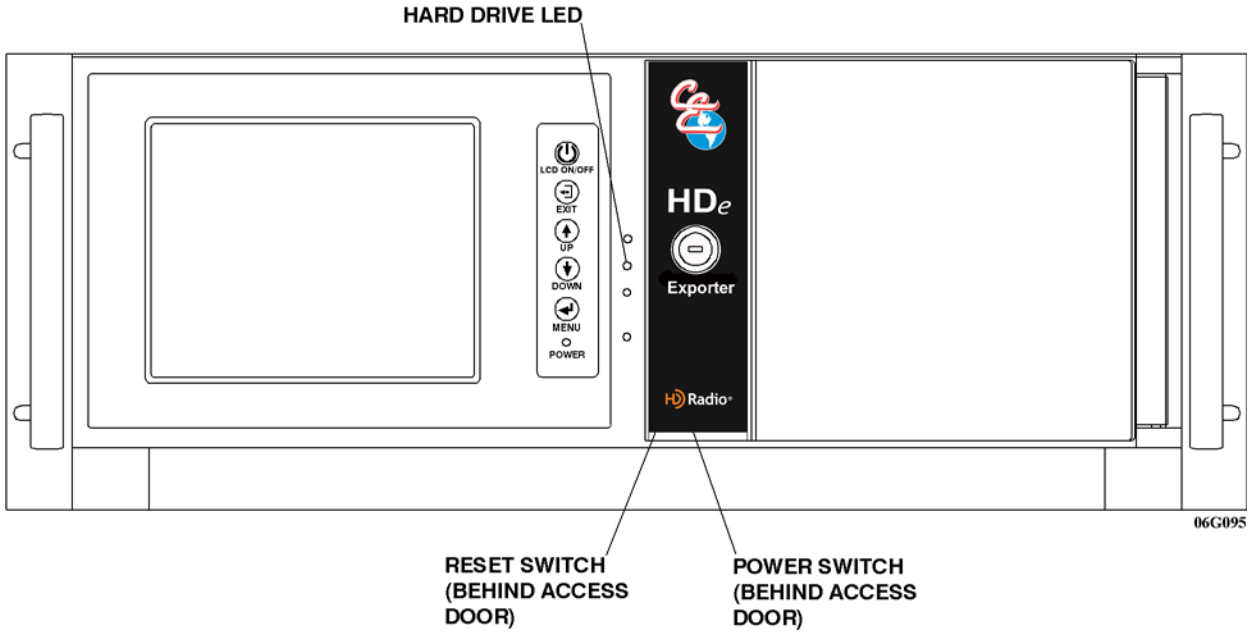


Figure 4-3 HD Exporter Front Panel

4.2 Interface Description

Table 4-1contains a listing and description of the IBOC FM interface connections, including connector type.

Table 4-1 Interface Description.

Function	Input/Output	Description	Connector
1 PPS	Output	TTL level	BNC Female
10 MHz	Output	+5 dBm	BNC Female
GPS ANT	Input	Power is supplied to the antenna from the center conductor of the coaxial cable. This connection must be made with a single cable and not through any other devices such as an amplifier or splitter/combiner	TNC Female
Digital Input	Input	AES/EBU Audio	XLR Male
Monitor	Output	AES/EBU Audio	XLR Female
Ethernet	Input/Output	100 MHz Network Connection	RJ45 Female
LVDS I/Q	Not Used		RJ45 Female
Telco	Not Used		RJ11 Female
Mouse	Not Used		PS2
Keyboard	Not Used		PS2
AC Pwr	Input	Automatically switchable: 94 - 264 Vac	

4.3 HD Exporter Front Panel Controls and Indicators

The HD Exporter has five buttons and one indicator on the front panel display to control the screen information. The buttons and the indicator are labeled as follows:

Control/Indicator	Function
LCD ON/OFF Button	Applies power to and turns off LCD monitor.
EXIT Button	Exits from menu or slide bar. Also press button again to enter menu selection.
UP Button	Adjust the value up of slide bar or press to select up slide bar.
DOWN Button	Adjust the value down of slide bar or press to select down slide bar.
MENU Button	1. Press to enter menu for function selection. 2. When repeatedly pressing this button, it will sequentially open on-screen display (OSD) window page-1 and then page-2. 3. On/Off function changing on slide bar. 4. Select slide bar and press menu button. You can see it turn Red and then you can use UP/DOWN buttons for setting value.
POWER LED	Lights Green when power is applied to LCD monitor.

Also included on the front panel are three status indicators and one switch beside the access door and two switches behind the access door. Only one of the indicators and the two switches behind the access door are used. Their functions are as follows:

Control/Indicator	Function
Hard Drive LED	Indicator flashes when the hard drive is accessed during read/write operations.
Power Switch	Located behind access door. Applies power to and turns off HD Exporter.
Reset Switch	Located behind access door. Resets processor circuits (soft reboot).
Temperature and Fan LED, and Buzzer Off Switch	Not Used.

5 Abbreviations and Conventions

5.1 Abbreviations and Acronyms

AES/EBU	Audio Engineers Society/European Broadcast Union
ALFN	Absolute L1 Frame Number
AM	Amplitude Modulation
BER	Bit Error Rate
CD	Compact Disk
CD/ROM	CD/Read Only Memory
DUN	Dial-Up Networking
FCC	Federal Communications Commission
FM	Frequency Modulation
GPS	Global Positioning System
GUI	Graphical User Interface
IBOC	In-band On-channel
L1	Layer 1
LED	Light Emitting Diode
LVDS	Low Voltage Differential Signal
MF	Medium Frequency
MPA	Main Program Audio
MP1–MP7	Primary Service Modes 1 through 7
MS1–MS4	Secondary Service Modes 1 through 4
PAR	Peak-to-Average Ratio
RF	Radio Frequency
RLS	Radio Link Service
SIS	Station Identification Service
VHF	Very High Frequency

5.2 Presentation Conventions

Unless otherwise noted, the following conventions apply to this document:

- Information enclosed in braces { } is either unavailable at the present time or subject to change.
- All vectors are indexed starting with 0.
- The element of a vector with the lowest index is considered to be first.
- In drawings and tables, the leftmost bit is considered to occur first.
- Bit 0 of a byte or word is considered the least significant bit.
- In representations of binary numbers, the least significant bit is on the right.
- When presenting the dimensions of a matrix, the number of rows is given first (e.g., an n x m matrix has n rows and m columns).
- In timing diagrams, earliest time is on the left.

6 HD Exporter Operating Procedures

This section contains HD Exporter operating procedures.

6.1 Startup

Startup can be executed as embedded or non-embedded. The non-embedded startup requires manual entering of system configuration information from the keyboard, as described in Paragraph 6.1.1. To have the HD Exporter run the latest software upon power up with no user intervention, use embedded startup as described in Paragraph 6.1.2. Perform the appropriate startup procedure to initialize the HD Exporter.

NOTE: Paragraph 6.1.1 or 6.1.2 must be executed immediately after an OS upgrade for proper operation. All Set commands must be executed as Root user to have effect.

6.1.1 Startup Non-Embedded

Perform the following procedures to initialize the HD Exporter in **non-embedded** mode:

Set primary power on the HD Exporter to On.

If the unit is in the embedded mode, open an xterm window and type the following:

For general non-embedded operation	setdev	Press Return
To Set the IP address to 10.10.10.10	setaway	Press Return
To set local network settings for MD type	setmode MD	Press Return
Or to set local network settings for NJ type	setmode NJ	Press Return

The unit must be rebooted for the change to take effect. Once the system boots up completely, login as root with the appropriate password.

Type:	*start*	Press Return

The following information is displayed:

/usr/dab

run ./init_loader.x ...

Executing Kernel: 2.4.20

Available baselines	Kernel (built from)
0) /usr/dab/irss-1.4.4	2.4.20 (default)

Type: *0* and press *Enter*

The unit initializes and the main menu is displayed. The system is ready for operation.

6.1.2 Startup Embedded

Perform the following procedures to initialize the HD Exporter in **embedded** mode.

Set primary power on the HD Exporter to On.

To set for embedded operation	setemb	Press Return
To Set the IP address to 10.10.10.10	setaway	Press Return
To set local settings for MD type	setmode MD	Press Return
Or to set local settings for NJ type	setmode NJ	Press Return

The unit must be rebooted for the change to take effect.

Press Return the default program is run without login on subsequent start-up.

6.2 Audio Diversity Blend Delay Adjustment

Not Used.

6.3 Log Levels

To set the hard-drive logging level, select Levels from the Log Tab main menu. The screen in Figure 7-31 is displayed. To set the logging level for an individual process, set the Log Level to a value 0 through 7 (0=Off, 7=Max). To set the description associated with the screen logging (not to a file) of each process, increase the number under the Verbose Level column (0=Off, 7=Max) to the appropriate level. This sets the Log Level stored in file /mnt/data/irss.log. This file is archived to a date associated file ex: /mnt/data/03-02-03/irss02:33:00.log.

The size and number of these files can be set by editing /usr/dab/irss-1.4.4/cfg/com/logx.cfg

Excerpt from logx.cfg

logFilePath=".";

logFileName="irss";

logAsciiFileSize=%d : 10000000;

logBinFileSize=%d : 209715200;

logSentCycleFlag=%d : 0;

logArchiveDay=%d : 2;

logArchFileCount=%d : 5;

To increase the size of each file, change logAsciiFileSize.

To increase the number of days to hold data files, change logArchiveDay.

To increase the number of files stored each day, change logArchFileCount.

Exercise caution when setting these file sizes and log levels: excessive data can lead to a full disk.

6.4 Shutdown Procedure Non-embedded

Select Shutdown.

If power is to be removed, type *halt*. This will stop the OS. Wait until *OK* is displayed to turn power off.

If the OS is to be restarted, type *reboot*. The unit reboots to the login prompt.

If the application is to be restarted, type: *start* to restart the program.

6.5 Shutdown Procedure Embedded

Select Shutdown.

If power is to be removed, select *Shutdown* and press *OK*. This will halt the OS. Wait until the display indicates *OK* to power down.

If the OS is to be restarted, select *OS Restart* and press OK. The system will reboot back to the default program.

If the application is to be exited and restarted, select *Restart* and press *OK* to exit and rerun the program.

6.6 Remote GUI Control

When the HD Exporter operating system is running, control can be remotely established using a standard web browser such as Internet Explorer. A network connection to the Exporter must be established by Ethernet.

Network setup for the Exporter

1. Press the ShutDown button on the Main Exporter screen. The following screen will open after typing in the Password.

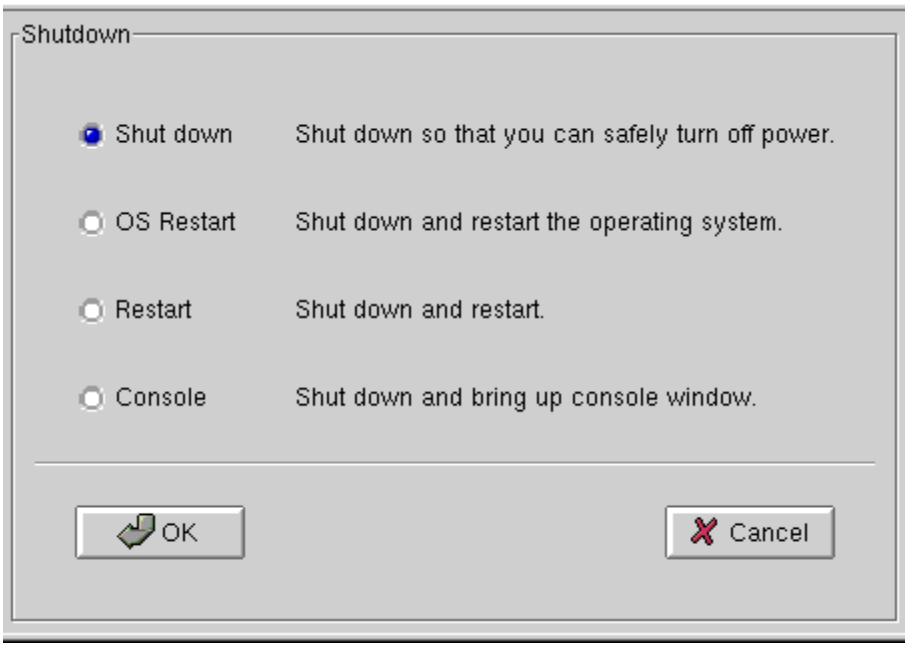


Figure 6-1 Exporter Shutdown Control Screen

2. Select Console and press OK. Irss will shut down and you will get a Linux prompt. Log in as “root” and use “password” as the password. At the # prompt, type “linuxconf”. The Linuxconf main screen will display.

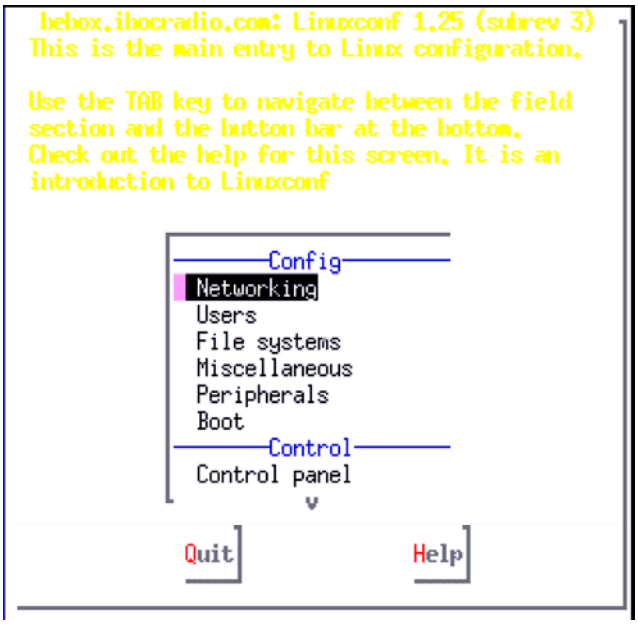


Figure 6-2 Linuxconf Main Screen

3. Press Enter on the keyboard. The following screen will display.

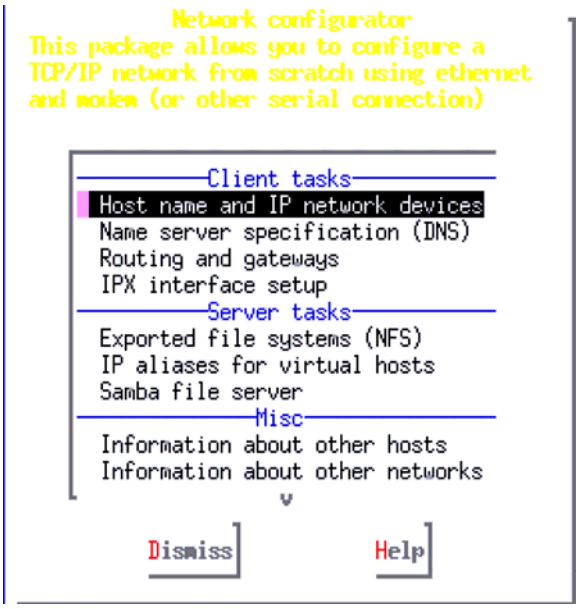


Figure 6-3 Linuxconf Networking Screen

4. Press Enter on the keyboard. The following screen will display.

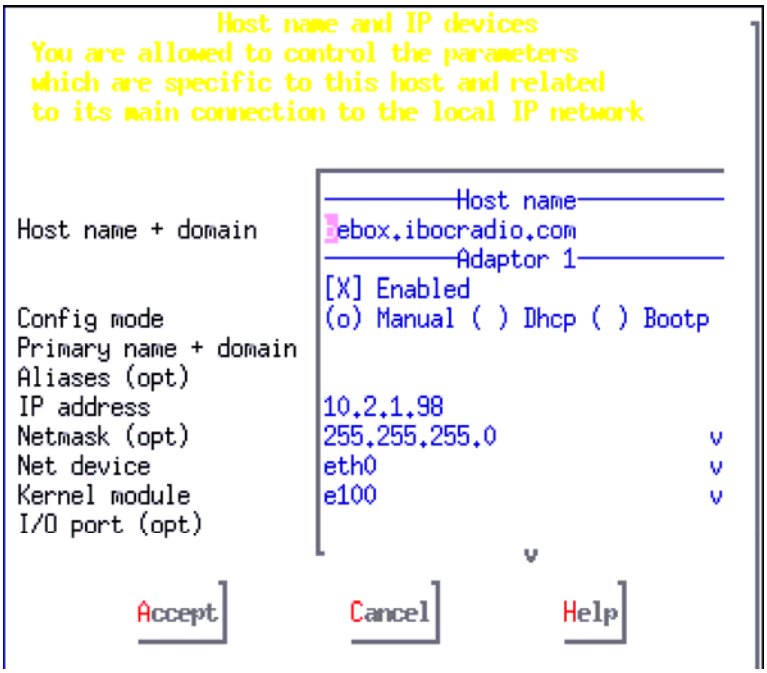


Figure 6-4 Linuxconf IP Setup Screen

5. Arrow down on the keyboard to the IP Address and type in the IP Address to be assigned to this unit.
6. Press TAB to Accept and then Enter on the keyboard. The following screen will display.

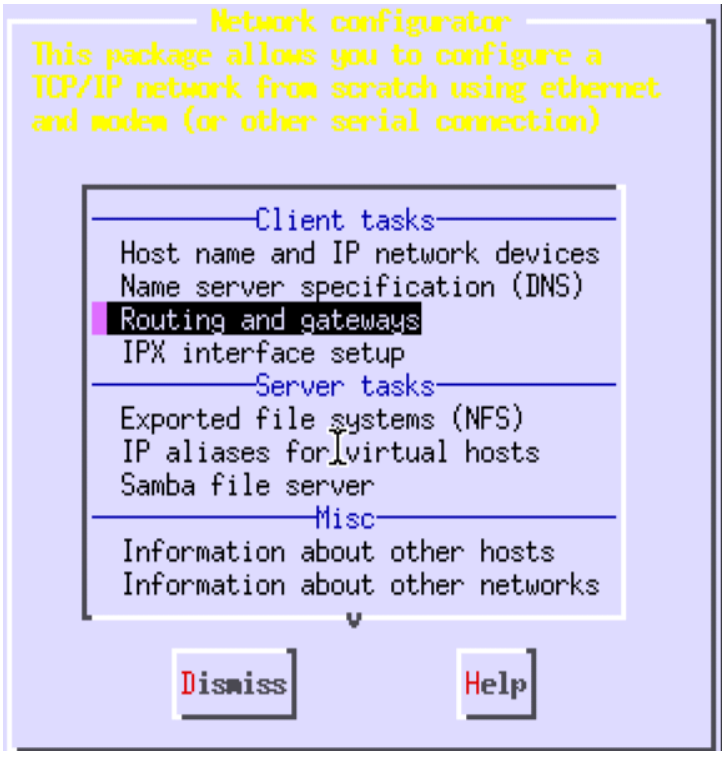


Figure 6-5 Linuxconf Routing and Gateways Screen

7. Arrow down to Routing and gateways.
8. Press Enter. The following screen will display.

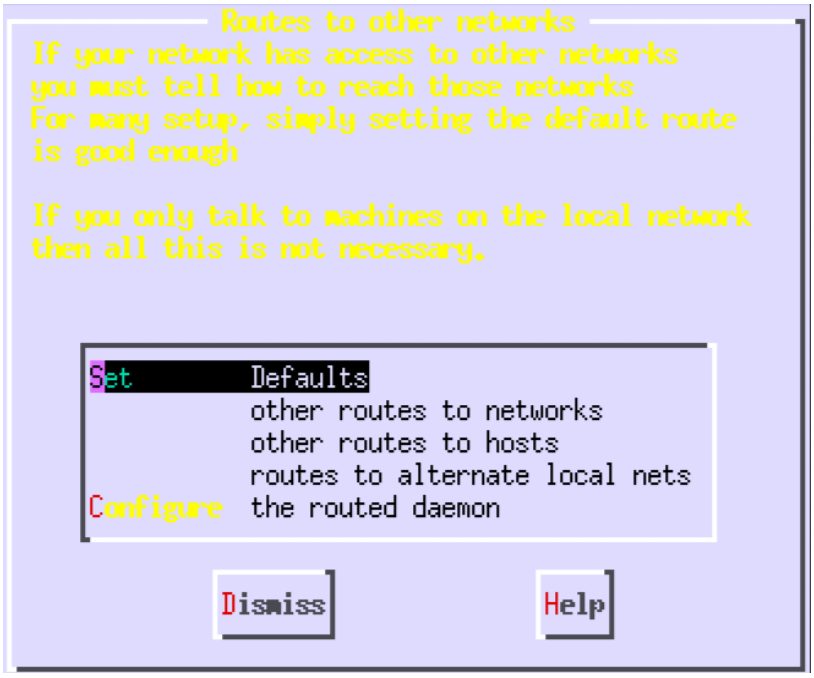


Figure 6-6 Linuxconf 2nd Page Routing and Gateways

9. Press Enter on the keyboard.

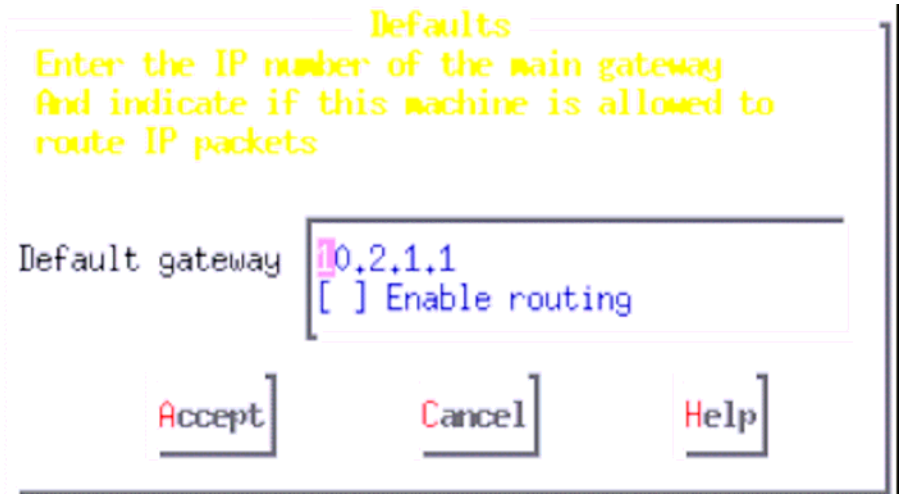


Figure 6-7 Linuxconf Default Gateway Setup

10. Type in the Default Gateway.
11. Press Tab to Accept.

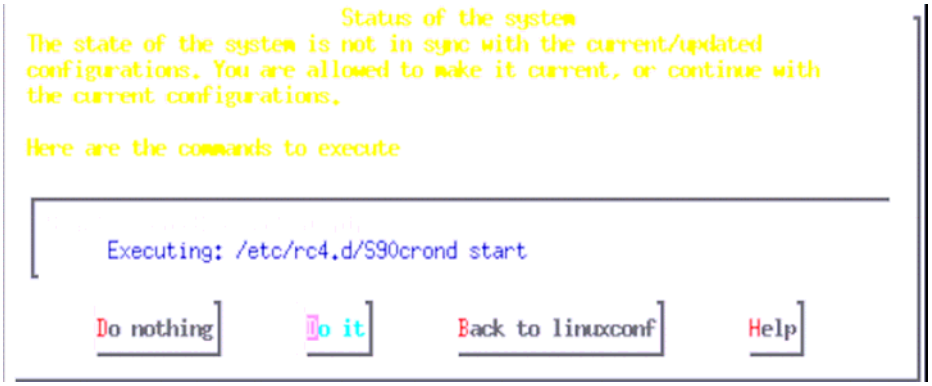


Figure 6-8 Linuxconf Final Config Screen

12. Press Tab twice to highlight Do It. Press enter.
13. The root # prompt will appear at the bottom of the screen under the Linuxconf window. Type "shutdown –r now" and press Enter. The Exporter will shut down all the way and reboot.
14. This completes the Network setup for the Exporter.

After a network connection is established, type the IP address or machine name in the Address field of a web browser. The VNC Authentication screen, Figure 6-9, will then be displayed.

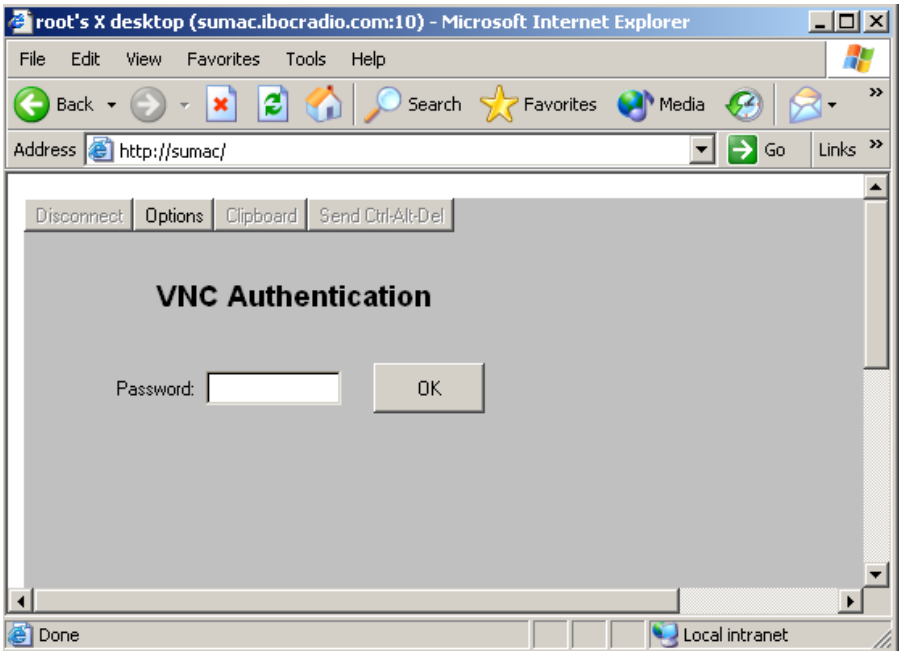


Figure 6-9 VNC Authentication Screen

Type "password" for the password and select OK. The Remote HD Exporter Main Menu is displayed in the web-browser as shown in Figure 6-10. The HD Exporter can now be controlled from the remote location, just as if you were at the console, without limitation.

Note: Any number of connections to the same HD Exporter is permitted (i.e. there is no lock-out for multiple users).

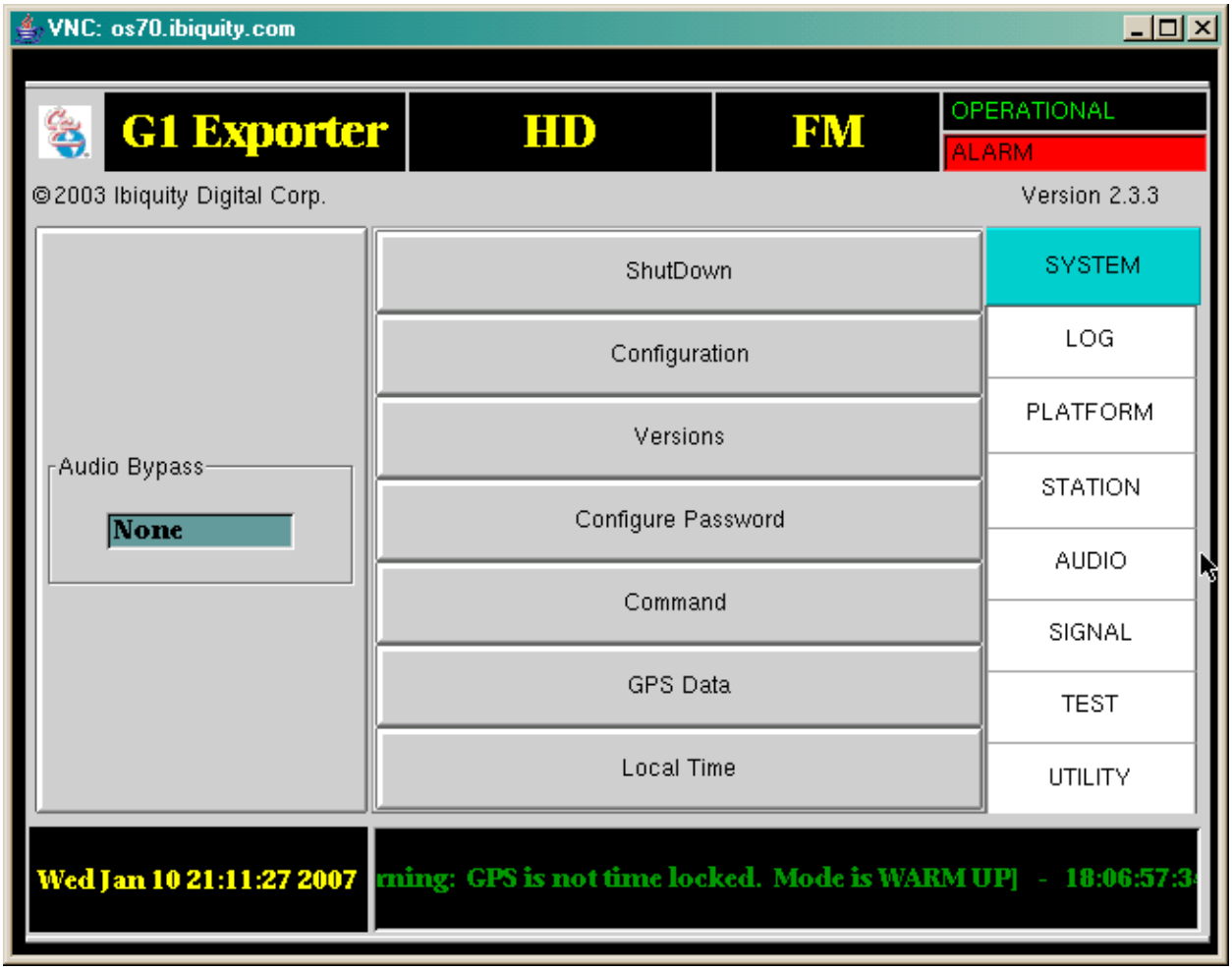


Figure 6-10 Remote HD Exporter Main Menu Access Screen

Access any X-windows applications and/or a console by using the System Command function, see Paragraph 7.2.5.

6.7 Console User Interface

All the capabilities of the HD Exporter can be invoked through the Console User Interface for the HD Exporter, cuitx.x. For complete use and syntax go to the proper directory and view the help file:

cd /usr/dab/irss-1.6.0/bin/tx

./cuitx.x –h | more

Press the space bar to walk through the file.

Additionally, any cuitx function can be set on a schedule utilizing the cronx feature. The following is an example of a script, **tgldab.sh**, that toggles the digital carriers on/off:

```
#read the dab state and write it to the variable flag
flag =`./cuitx.x –getL1Stat | grep “digital carrier control” | awk ‘{ print $5 }’`
#toggle the dab state, if on turn dab off if dab off turn it on.
If [ “$flag” == “ON” ]
        then
        ./cuitx.x –dab 0
        else
        ./cuitx.x –dab 1
fi
```

This script can be invoked on a schedule by executing the following command.

./cronx.x ./tgldab.sh 10

This will execute the script ./tgldab.sh every 10 seconds. When you no longer want the script to run type: q to quit.

NOTE: You must type “q” to quit. Do not press ctl-c. This will cause errors on the HD Exporter display.

7 Front Panel Description

Front panel descriptions are divided into two categories: Display/Indicator Definitions and Control Buttons for the HD Exporter.

In all windows the following general rules apply:

- Read-only fields have a light blue background
- Read/write fields have a blue-green background
- On data entry screens the *Cancel* button will not make any entered data permanent. Any screen with a *Cancel* button will also have an *OK* button that can be used to make data permanent.
- On data entry screens the *Close* button only closes the window. Any data that has been specified is already permanent because it was registered as entered.
- On Numeric keyboard screens the valid range of data will be displayed.
- Failures that need attention are displayed in RED.
- Warnings are displayed in Yellow.
- Normal status information is displayed in Green.

7.1 Graphical User Interface Display/Indicator Definitions

Figure 7-1 Exporter GUI Interface System Tab is the graphical user interface (GUI) Main Menu, as configured upon startup. Descriptions of display/indicator fields accessible from this screen are provided in the following subparagraphs.

Figure 7-2 is the Activity Monitor screen: This screen is displayed if no GUI interaction is detected for greater than 1 minute.

The first four LEDs depict the status of the four AES audio ports, Analog Audio Input, Analog Audio Output, Digital Audio Input, and Monitor Audio Output. These lights will blink from black to green as long as there is audio on each port. If silence is detected the light will remain black.

The Analog Input and Digital Input Fault LEDs should remain black during normal operation. If the AES stream at either port is not detected the LED will turn Red indicating the Fault.

The Exporter Link activity LED does not apply to the HD Exporter.

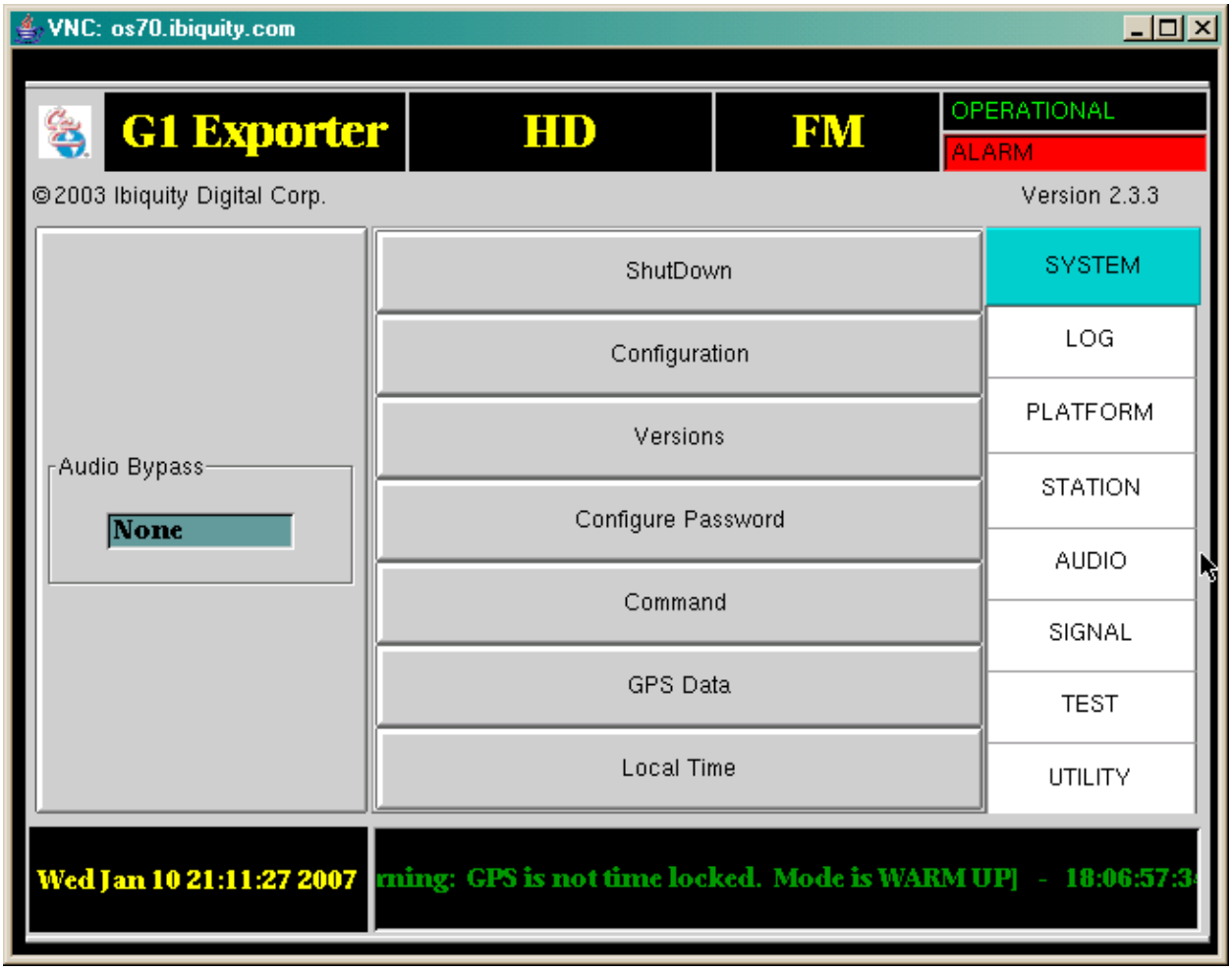


Figure 7-1 Exporter GUI Interface System Tab

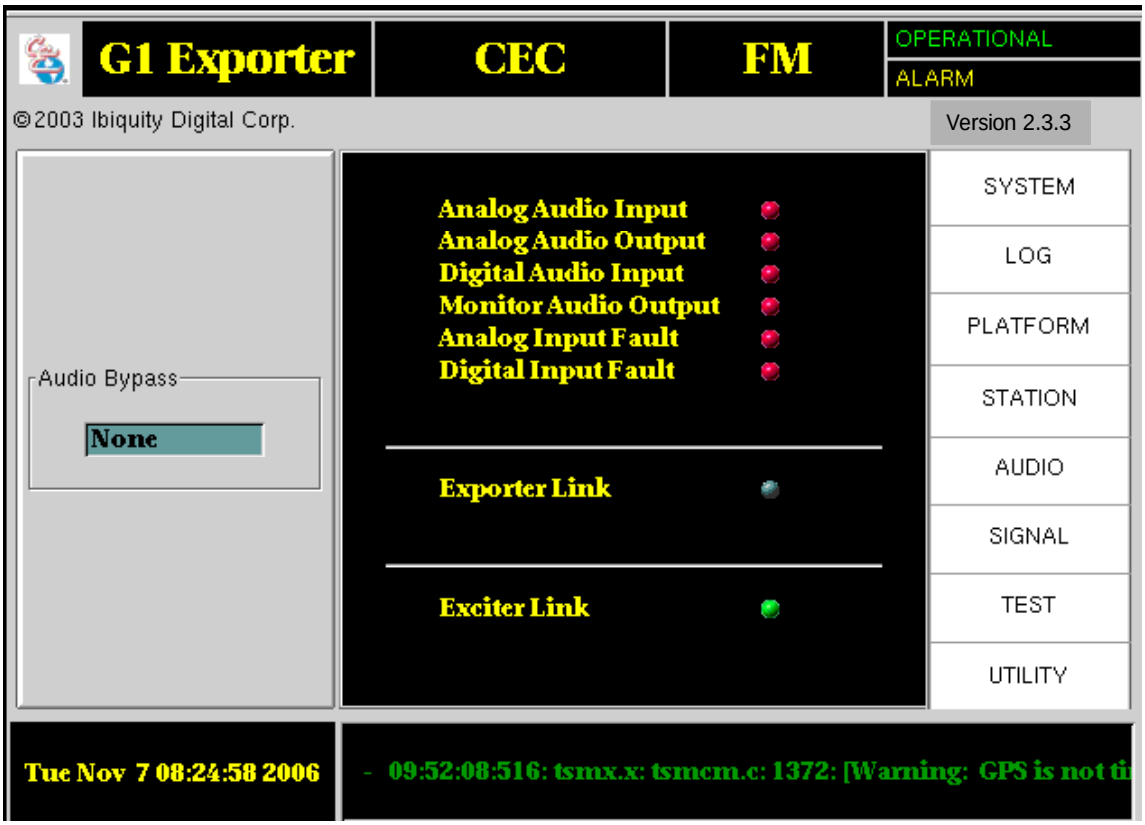


Figure 7-2 Exporter GUI Activity Monitor

7.1.1 G1 Exporter Platform Indicator

This identifies the present system platform. When selected, a platform menu is displayed as shown in Figure 7-3.

NOTE: The platform selected must be compatible with the hardware in use or errors will occur.

DO NOT change the Exporter platform. The G1 Exporter is the only platform supported in the 202200-4 configuration.

Figure 7-3 Version Properties Screen

7.1.2 Station Call Sign

The Station Call Sign indicator displays the call sign being transmitted with the digital data. When selected, the Station Information screen (Figure 7-4) is displayed.

The Station Information screen is subdivided into 4 group boxes: Station Identification, Call Sign, Station Slogan, and Station Message.

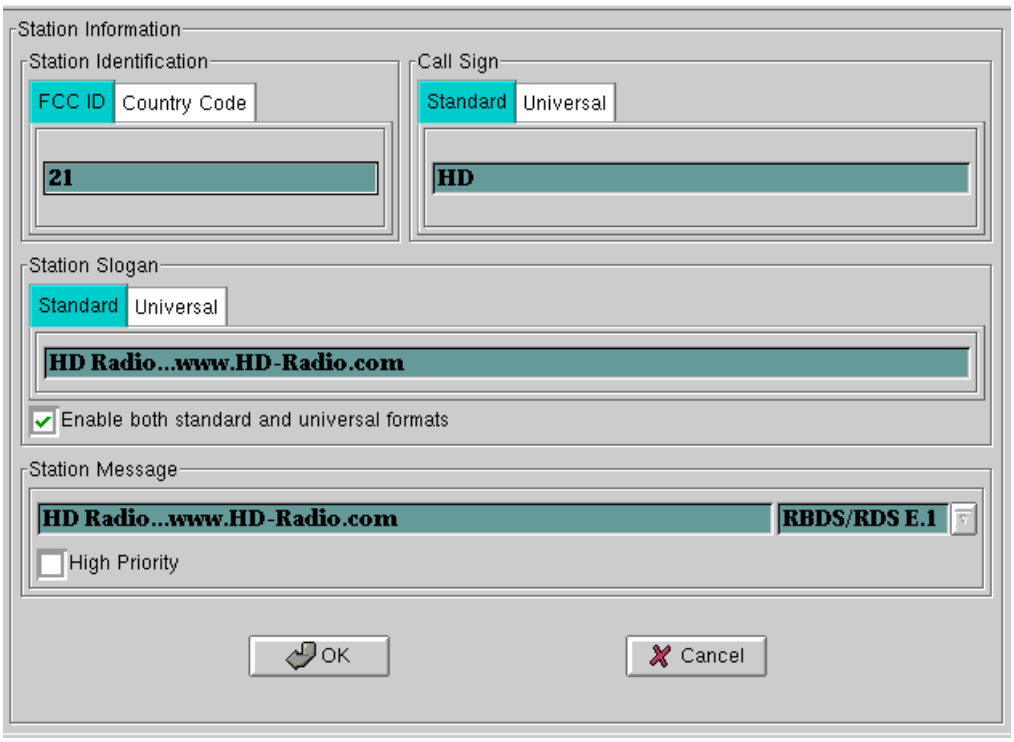


Figure 7-4 Station Information Screen

7.1.2.1 Station Identification

7.1.2.1.1 Country Code

The Country Code tab, when selected, displays a Numeric Keyboard screen similar to Figure 7-5. To change the Country Code, enter the desired Country Code using the number keys. Press *Enter* to establish the new Country Code and return to the Station Information screen.

7.1.2.1.2 FCC ID

The (Federal Communications Commission) FCC ID field, when selected, displays a Numeric Keyboard screen (Figure 7-5). To change the FCC ID, enter the desired FCC ID using the number keys. Press *Enter* to establish the new FCC ID and return to the Station Information screen.

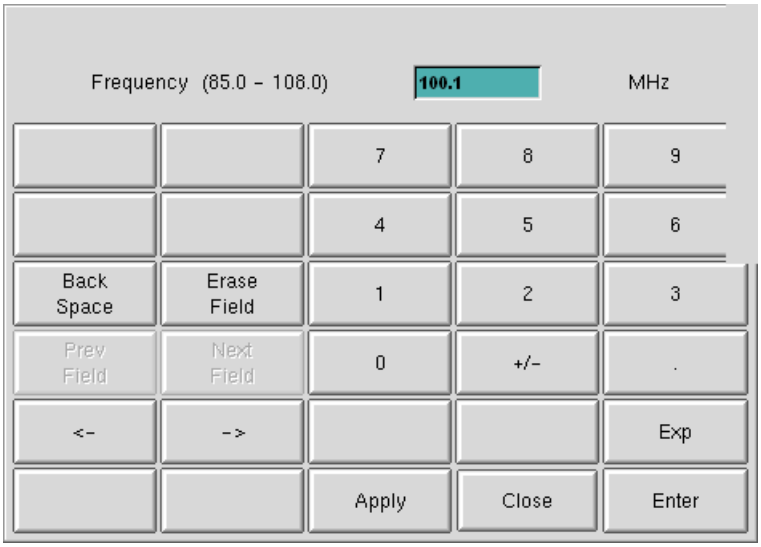


Figure 7-5 Numeric Keyboard

7.1.2.2 Call Sign

There are 2, mutually exclusive, methods for transmitting a station's call signs: Standard & Universal.

7.1.2.2.1 Standard

NOTE: The Standard Call Sign field is limited to four characters; all characters MUST be upper case. The Standard Call Sign field, when selected, displays a Alphanumeric Keyboard screen similar to Figure 7-7. To change the Standard Call Sign, enter the desired letters. Selecting shift, type the desired four-character Call Sign using the character keys. Press *Enter* to establish the new call sign and return to the Station Information screen.

7.1.2.2.2 Universal

If a station's call sign is longer than 4 characters, or contains international symbols, the Universal Call sign should be used. The Universal Call Sign supports 4 different character sets: RBDS/RDS E.1, RBDS/RDS E.2, RBDS/RDS E.3, and Unicode. Use the drop down box (as shown in Figure 7-6) to select the desired character set. The Universal Call Sign field, when selected, displays an Alphanumeric Keyboard screen similar to Figure 7-7. To change the Universal Call Sign, enter the desired letters. Press *Enter* to establish the new call sign and return to the Station Information screen. If "Append Band" is selected (checked), the current frequency band will be appended to the Universal Call Sign that is displayed at the receiver.

7.1.2.3 Station Slogan

There are 2 methods for transmitting a Station Slogan: Standard & Universal. Unlike the Call Sign, both methods can be transmitted simultaneously. However, if they are transmitted simultaneously, the entries must be identical. If "Enable both standard and universal formats" is selected (checked) then the Universal Station Slogan entry is grayed out and displays the contents of the Standard Slogan.

7.1.2.4 Standard Station Slogan

NOTE: The Standard Station Slogan field is limited to 56 characters.
The Standard Station Slogan tab, when selected, displays a Alphanumeric Keyboard screen, similar to Figure 7-7. To change the Standard Station Slogan, enter the characters using the Alphanumeric Keyboard. Press *Enter* to establish the new Standard Station Slogan and return to the Station Information screen.

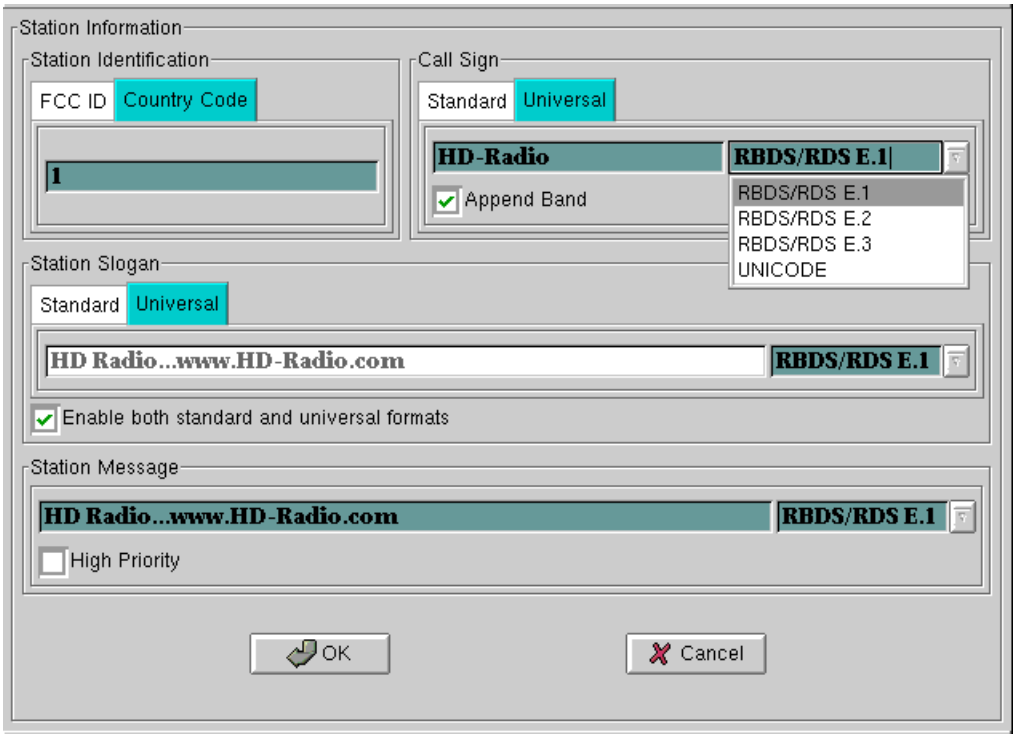


Figure 7-6 Universal Call Sign and Station Slogans

7.1.2.4.1 Universal Station Slogan

If a station's slogan is longer than 56 characters, or contains international symbols, the Universal Station Slogan should be used. The Universal Station Slogan supports 4 different character sets: RBDS/RDS E.1, RBDS/RDS E.2, RBDS/RDS E.3, and Unicode. Use the drop down box (as shown in Figure 7-6) to select the desired character set. The Universal Station Slogan tab, when selected, displays an Alphanumeric Keyboard screen similar to Figure 7-7. To change the Universal Station Slogan, enter the desired characters and press *Enter* to establish the new slogan and return to the Station Information screen.

7.1.2.5 Station Message

The Station Message field is used to transmit messages other than the call sign or station slogan. The Station Message field supports 4 different character sets: RBDS/RDS E.1, RBDS/RDS E.2, RBDS/RDS E.3, and Unicode. Use the drop down box (as shown in Figure 7-6) to select the desired character set. The Station Message field, when selected, displays an Alphanumeric Keyboard screen similar to Figure 7-7. To change the Station Message, enter the desired characters and press *Enter* to establish the new Station Message and return to the Station Information screen.

Check the "High Priority" box to indicate to receivers that current message has a high priority.

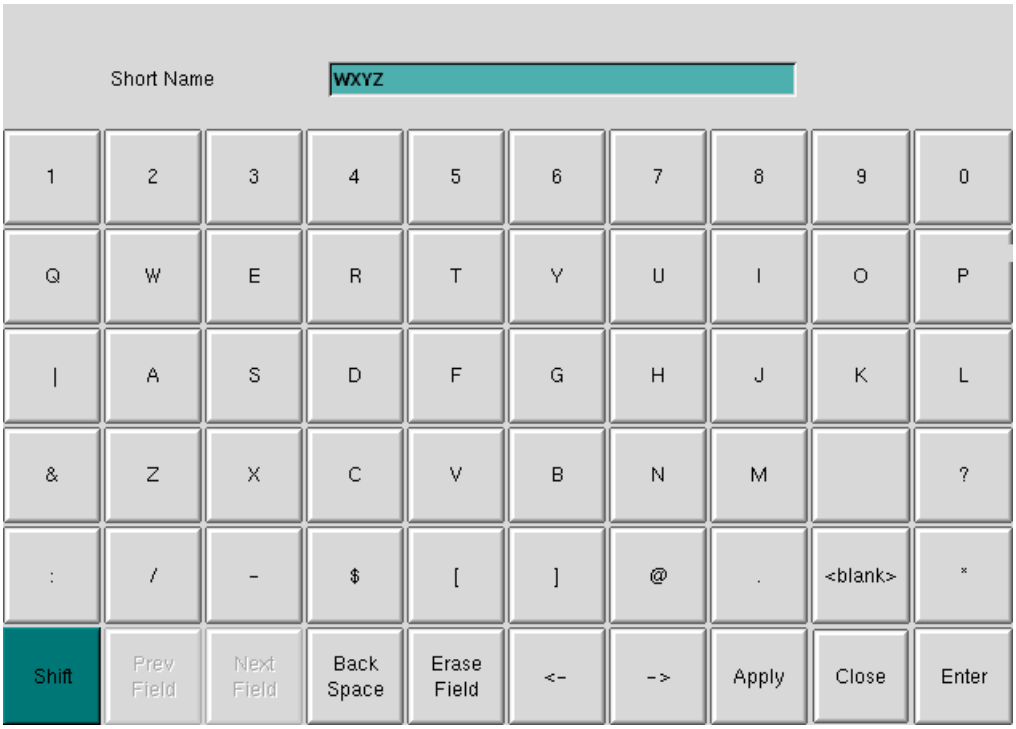


Figure 7-7 Alphanumeric Keyboard

7.1.3 Band

The main menu frequency band indicator displays the HD Exporter waveform selection: AM or FM.

7.1.4 Status Upper Section (Main Screen Upper Right)

The upper section displays current HD Exporter state. Either Operational in Green or Non-Operational in Red.

7.1.5 Status Lower Section (Main Screen Upper Right)

The lower section displays current HD Exporter Alarm state. Either No Alarm in Green or Alarm in Red. The Alarm can be cleared by selecting this area.

7.1.6 Date and Time

Date and time displayed are local time. To obtain the Global Positioning System (GPS) and use it for display in the lower-left corner of the main menu, see Sync Local Time below. If the GPS is not connected to an antenna with access to GPS data, this window will display a time/date of 00:00:00 Jan 6, 1980 and increment from that time until the system attains GPS time lock.

When selected, the Local Time insertion screen is displayed, Figure 7-8. This screen allows manual entry of local time.

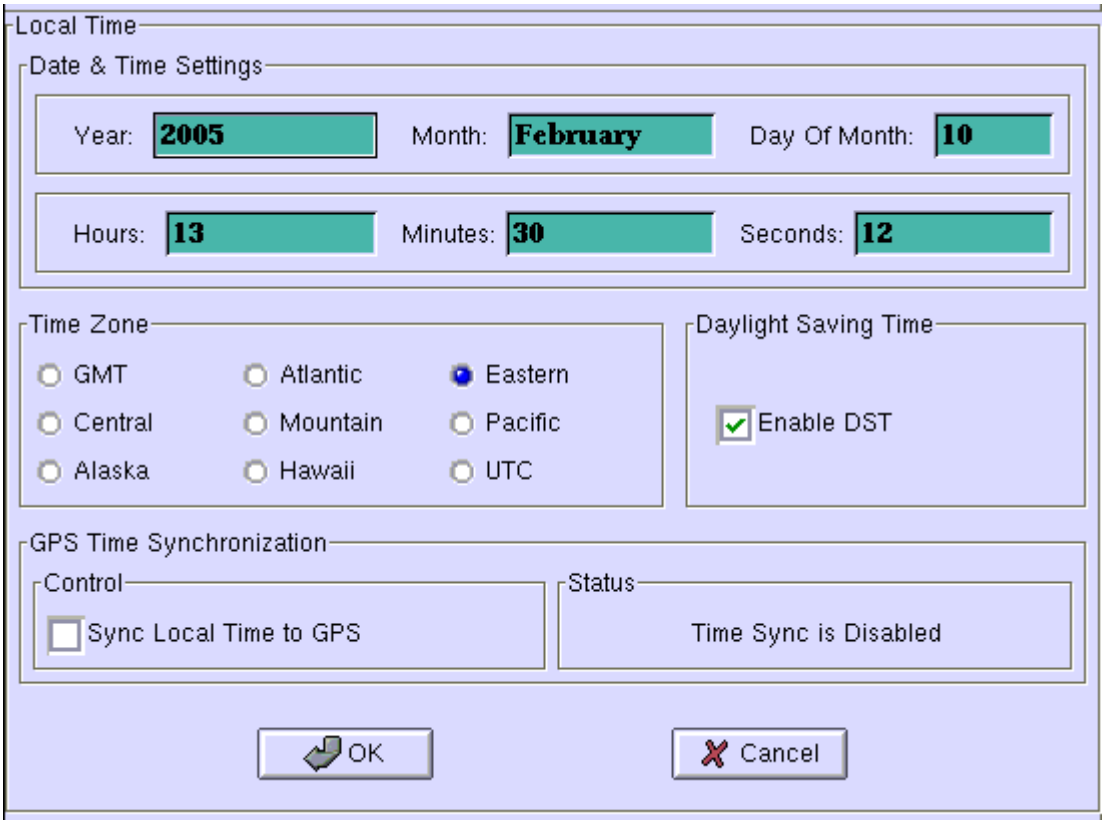


Figure 7-8 Local Time Insertion Screen

Enable DST if checked will use daylight savings time.

Select *Sync Local Time* to synchronize the system time to the GPS time.

7.1.7 Exporter Status Bottom Right

7.1.7.1 Status Section

The status section displays current exporter status. Error conditions are displayed in red and warning conditions are displayed in green. Select this area or the System Status Log button to view the status history as shown in Figure 7-9.

As seen in Figure 7-9, several warnings appear. The first and second indicate that the GPS is not time locked. The GPS antenna should be check for proper view of the sky. At times it will take time for lock to be acquired so you may have to wait for GPS lock.

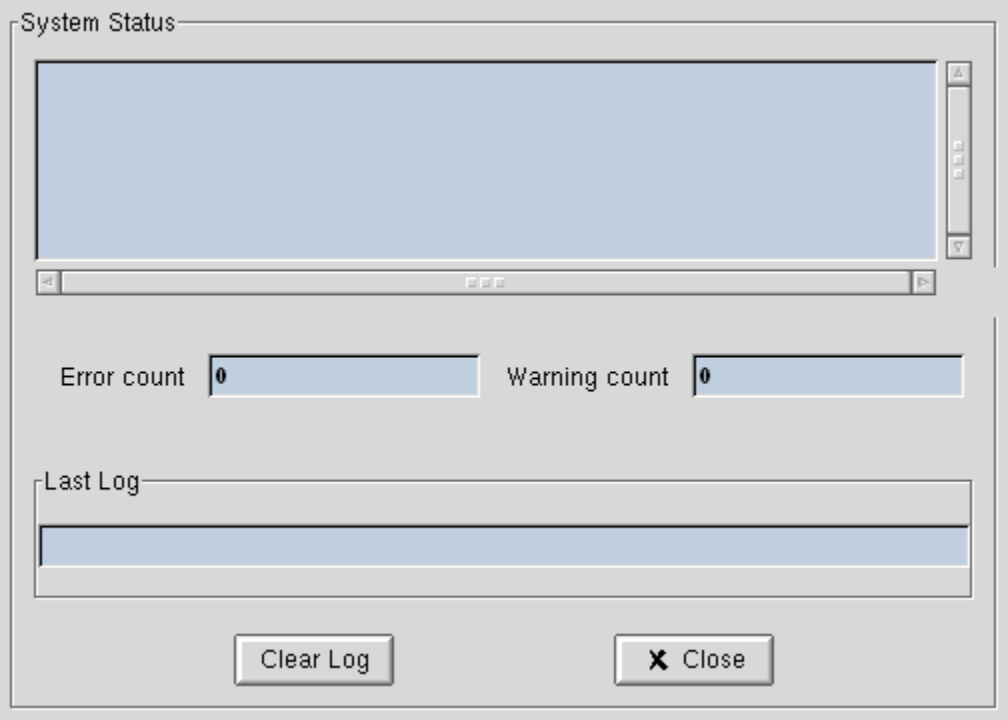


Figure 7-9 System Status Log Screen

7.2 System Tab Control Buttons

Figure 7-1 shows the GUI main menu System Tab screen: this screen is displayed upon startup. Descriptions of control buttons displayed on the System Tab of this screen are provided in the following subparagraphs.

7.2.1 Shutdown

The Shutdown control screen, Figure 7-10, is used to shutdown the exporter.

If power is to be removed, select *Shutdown* and press *OK*. This will halt the OS. Wait until the display indicates *OK* to power down.

If the OS is to be restarted, select *OS Restart* and press OK. The system will reboot back to the default program.

If the application is to be exited and restarted, select *Restart* and press *OK* to exit and rerun the program.

If the application is to be exited and a console session started, select *Console* and press *OK* to exit and start the session.

NOTE: See Paragraph 6.4 and/or 6.5 for detailed shutdown options.

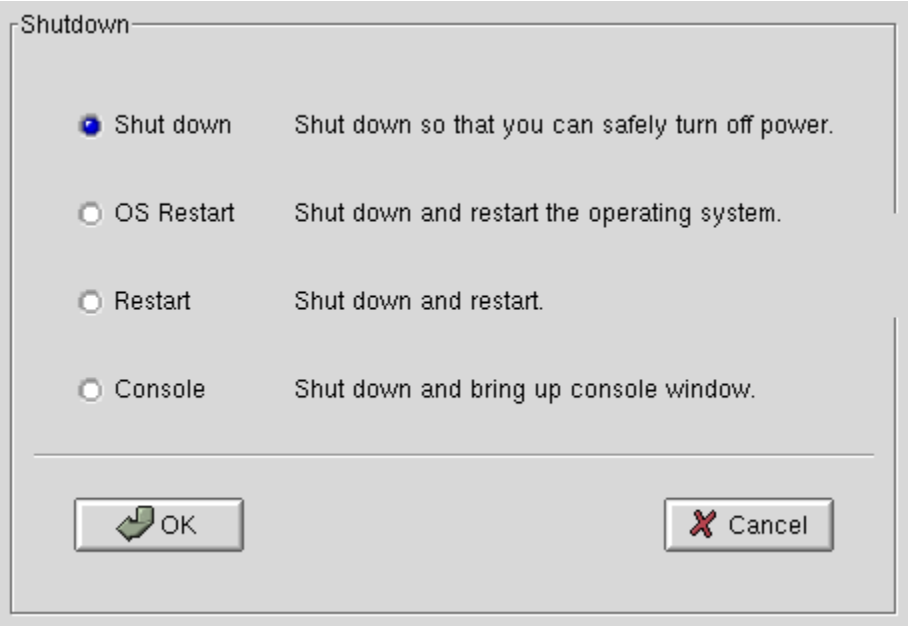


Figure 7-10 Exporter Shutdown Control Screen

7.2.2 Configuration

The System Configuration button provides access to the system configuration screen, Figure 7-11.

7.2.2.1 Config Channel

To configure the rate of the logical channels select *Config Channel.* When selected, the Channel Configuration screen will be displayed, Figure 7-12.

7.2.2.2 Channel Configuration

The Channel Configuration screen is used to set the amount of bandwidth given to each service available; Audio, Station information, or Data. These settings are repeated for all logical channels available:

Channel 1 – P1 Channel 2 – P2

Channel 3 – P3 Channel 4 - SIS

7.2.2.3 Current Mode

Current Mode displays the layer 2 current configuration setting.

7.2.2.4 Total Size (bytes)

The *Characteristics* group box displays the size of the logical channel PDU, the rate at which the PDU is sent, and the bandwidth (or average rate) of the PDU for each logical channel.

7.2.2.5 Obtain Data Externally

The Partitioning group box displays information pertaining to how each logical channel is partitioned between Main Program Audio (MPA), fixed data and opportunistic data.

MPA Size allows the selection of the amount of bytes to be used for the Main Program Audio (MPA). The user can either enter the value or use the Up and Down buttons to change the default value.

NOTE: Lowering this number from it's maximum value can have deleterious effects on Audio quality.

When MPA Size is lowered from the maximum (default), the remaining bytes (Size – MPA Size) can be allocated to *Fixed* or *Opp*ortunistic data. Initially, all extra bytes are assigned to Opportunistic data unless the "*Enable Opp*" check box is not selected.

The *Obtain Data Externally* button should be unselected. See an iBiquity Digital representative for use.

7.2.2.6 Previous

Select Previous Page to scroll through all logical channels.

7.2.2.7 Next

Select Next Page to scroll through all logical channels.

7.2.2.8 Save Config

Selecting *Save Config* will create a file of the current system mode configuration files (freq, analog delay…).

7.2.2.9 System Configuration Value

Select the number adjacent to Enter Item No. for selected configuration. When selected, the Numeric Keyboard screen, Figure 7-5, is displayed. To change the configuration value, enter the desired configuration value using the number keys. Press *Enter* to establish the new configuration. When a selection is made, the user is prompted to restart the system. See Figure 7-11 for available choices.

There are 3 System Configuration Values that are labeled as 'Dynamic':

- 24 FM MP1-MP3 Dynamic
- 25 FM MP5 Dynamic
- 26 FM MP6 Dynamic

These System Configuration Values allow the channel bandwidth and/or mode characteristics to be updated without requiring a reboot of the exciter.

NOTE: Only shaded selections are available. All non-shaded configurations have not been fully verified and are for internal test only, use at your own risk. The non-shaded configurations will require the user to enter a password for access.

7.2.2.10 Restart Options

Selecting *Save Current Configuration* upon restart, from this screen only, the current system mode configuration files will be saved for use upon startup.

Selecting *Load Default Configuration* will use the default configuration values when restarted, from this screen only.

Selecting *Reboot the Exporter over the Exporter Link* will send a message to the Exporter to reboot when restarted, from this screen only.

7.2.2.11 Restart

Selecting *Restart* will restart the system. Selecting *Cancel* will exit this window.

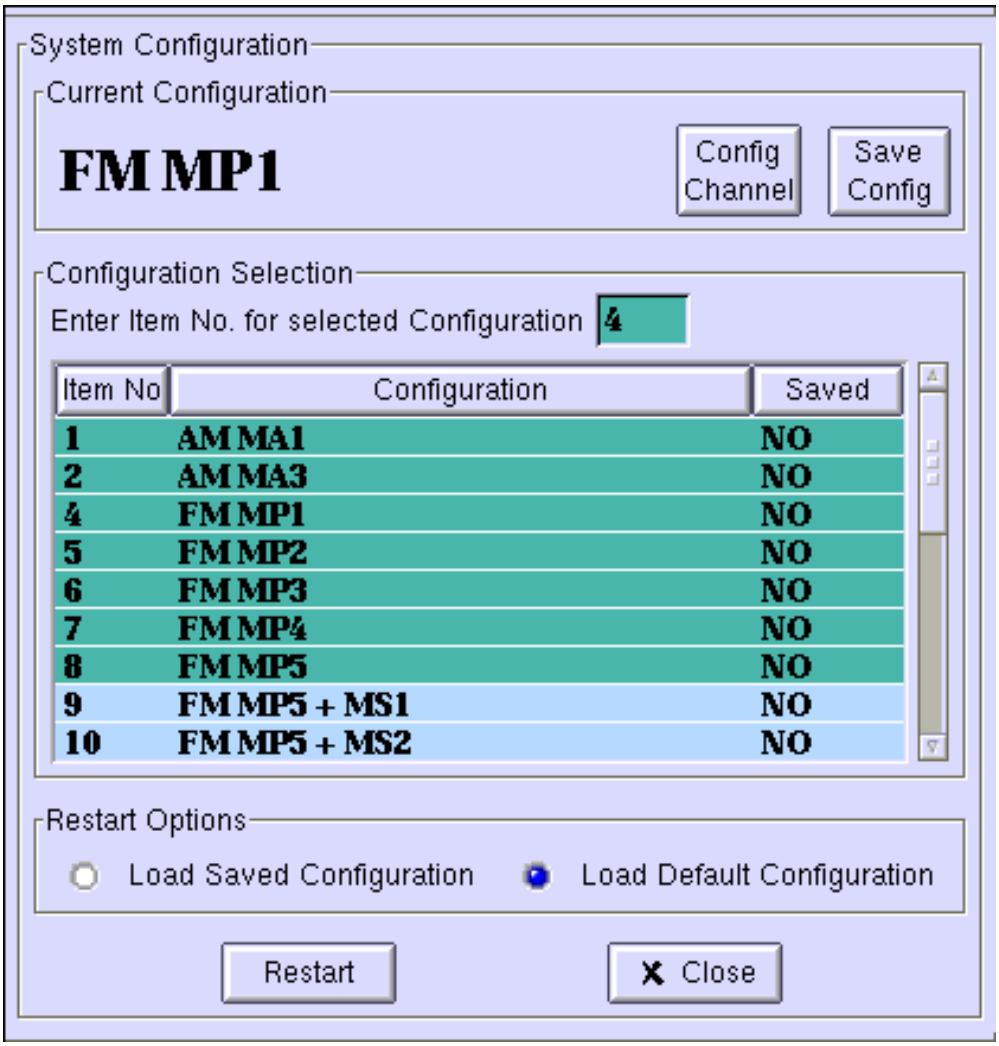


Figure 7-11 System Configuration Screens

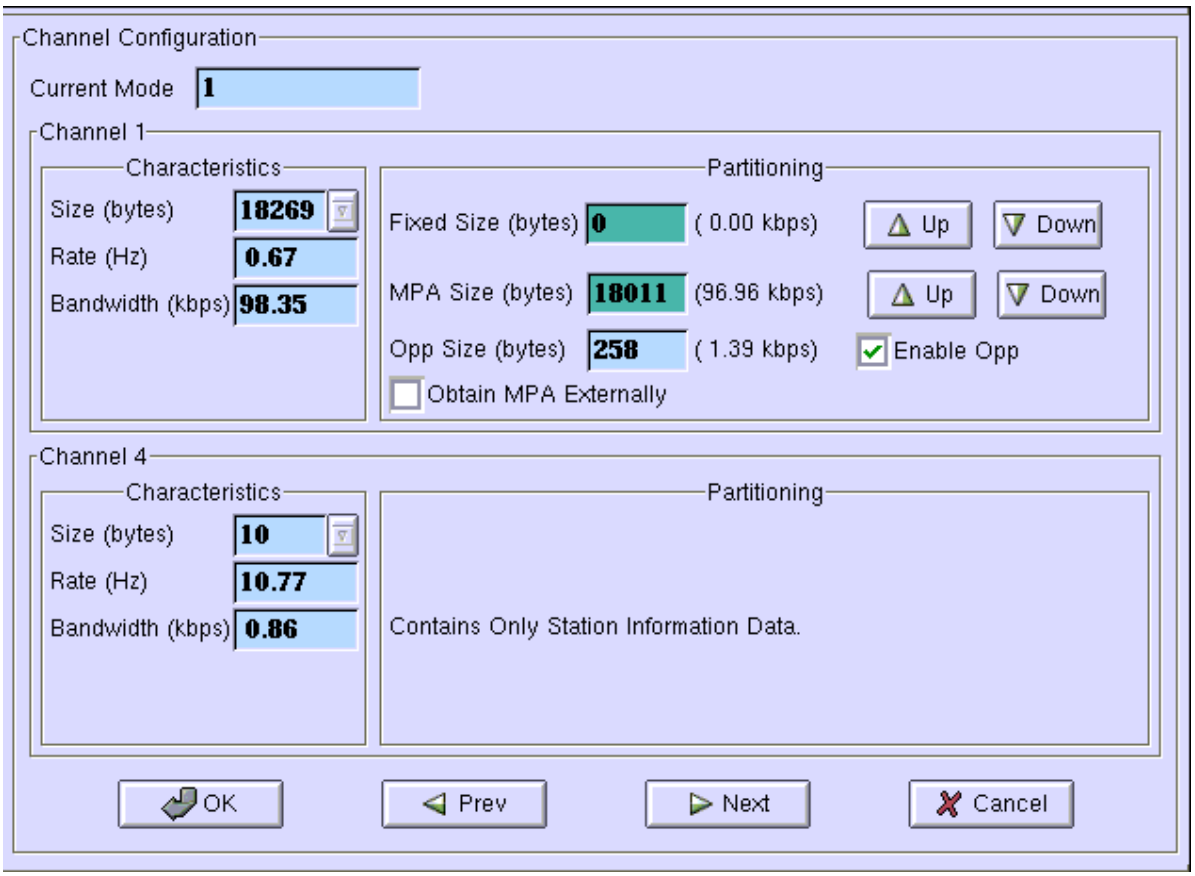


Figure 7-12 Channel Configuration Screen

7.2.3 Versions

When selected, a display of the present software/firmware/Motherboard configuration will be shown, Figure 7-13. This information will not be valid until after the system has indicated it is Operational.

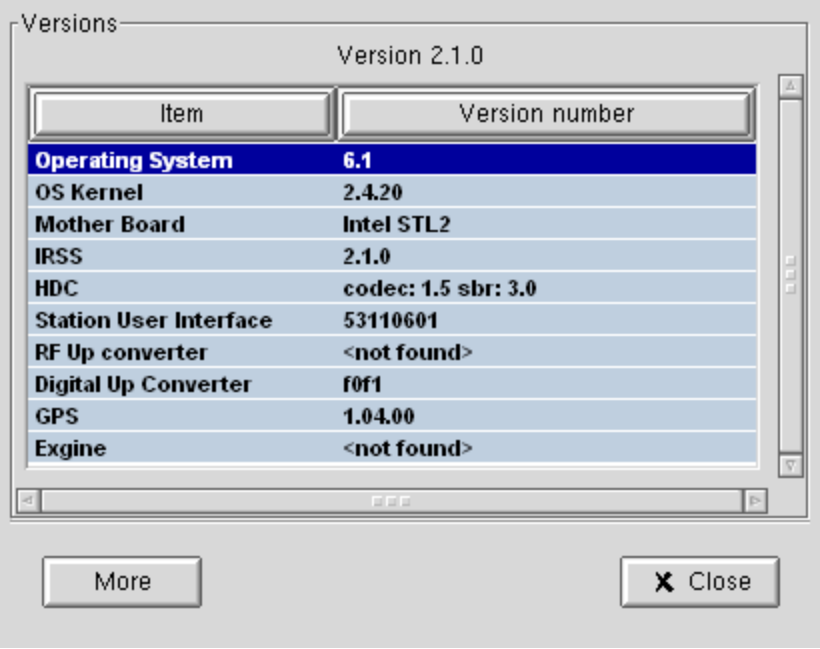


Figure 7-13 Versions Screen

To view additional detailed information, select the More button and Figure 7-14 is displayed.

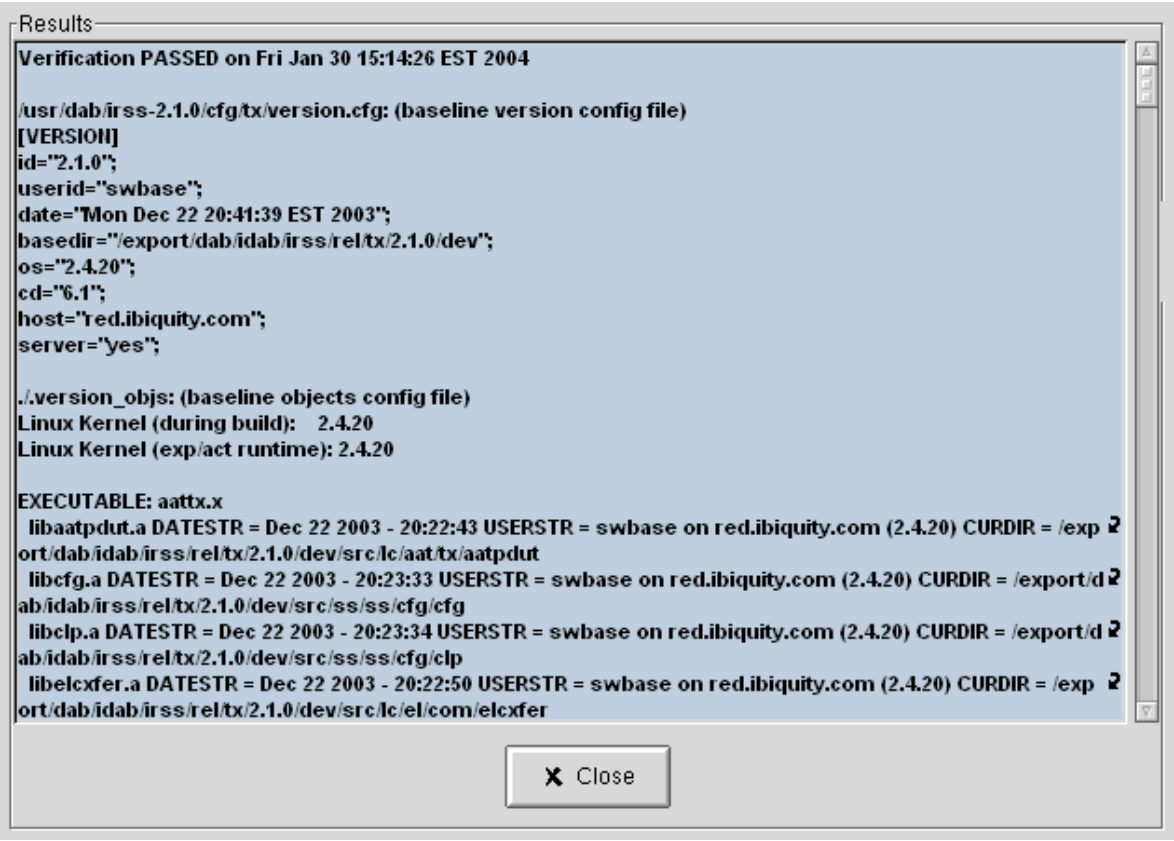


Figure 7-14 Versions More Screen

7.2.4 Configure Password

When selected the user will be prompted to enter the present password to gain access to the password configure screen, Figure 7-15.

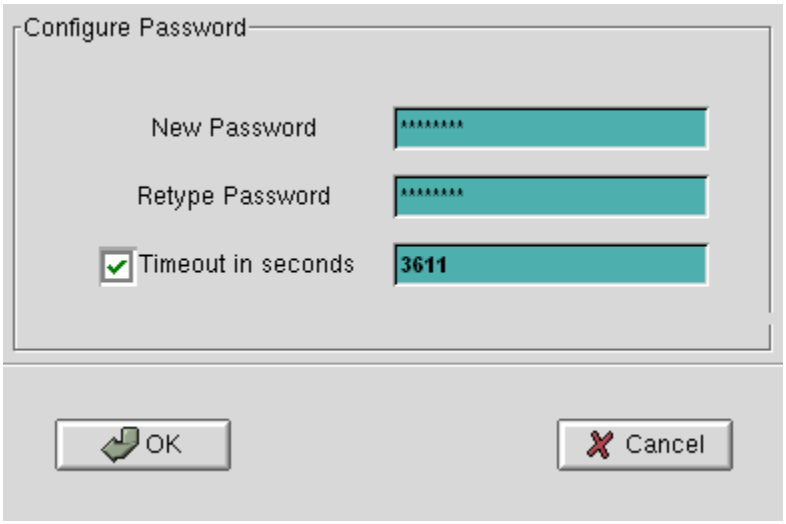


Figure 7-15 Password Screen

The new password can now be entered. Confirm the new password by entering it again in the Retype Password area.

Timeout in seconds value denotes how long, after entering a valid password, you have unlimited access before you are again prompted to enter the password again. If the checkbox is unchecked the access time has no limit and is valid until changed or the exporter is rebooted.

7.2.5 Command

The System Command screen, Figure 7-16, is displayed when selected.

7.2.5.1 Command/Results

To execute a linux system command (ls, pwd …), enter the command here. The results of the command can be displayed immediately by placing a check mark in the *Display Results* box. The results can also go to a file as defined by the file name in the *Results/Output File:* line. To execute the command select *Execute*.

If the Display Results option is selected, Figure 7-17 will now be displayed. Select Cancel to return to the Receiver Submenu screen.

7.2.5.2 Browse

This button can be selected to choose a file/directory (for execution or results storage). Figure 7-18 will appear. Press *OK* to enter the selection and return to the System Command screen.

7.2.5.3 Common Applications Display Virtual Keyboard

This button, if selected will display a virtual keyboard (Figure 7-19) on the display when the common application is run.

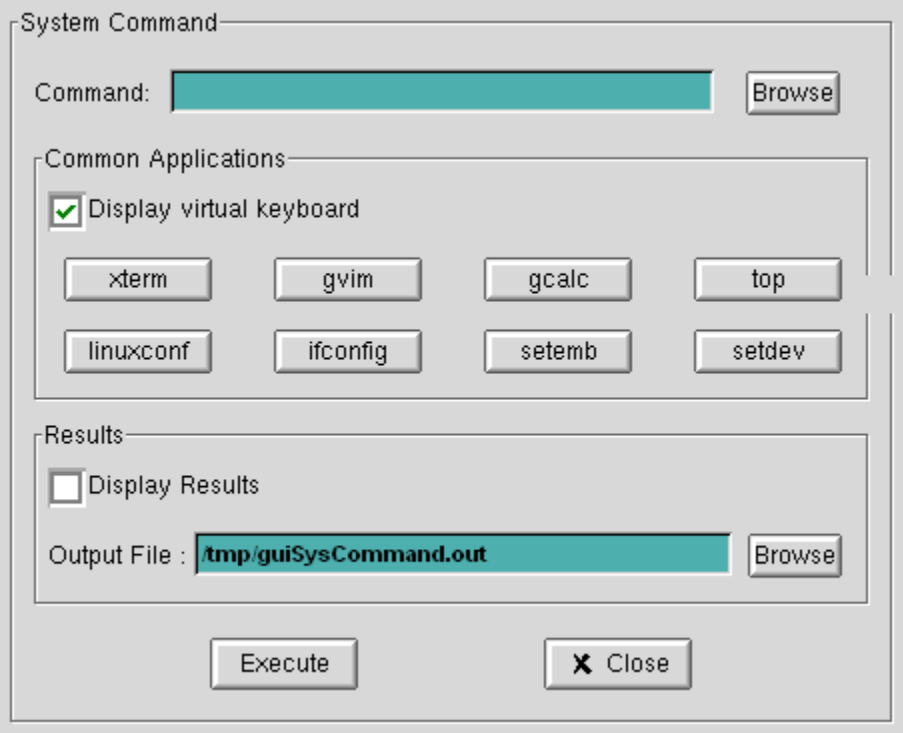


Figure 7-16 System Command Screen

7.2.5.4 Common Applications Xterm

This button, if selected, will display an Xterm Window, (Figure 7-20). The user can now type commands. When done, the user types exit and presses return to close the window and return to the System Command window.

Figure 7-17 Command Results Display

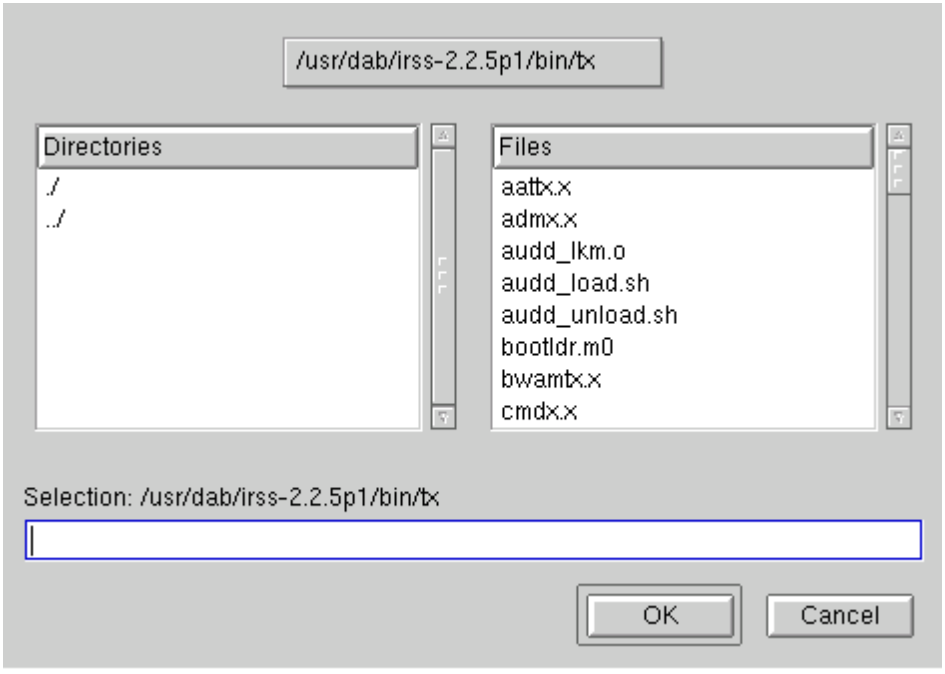


Figure 7-18 Browse Screen

Figure 7-19 Virtual Keyboard

Figure 7-20 Xterm Window

7.2.5.5 Common Applications gvim

This button, if selected, will display a Graphical Text Editor (Figure 7-21). The user can now call up a file to edit. When done, select file/exit to return to the System Command screen.

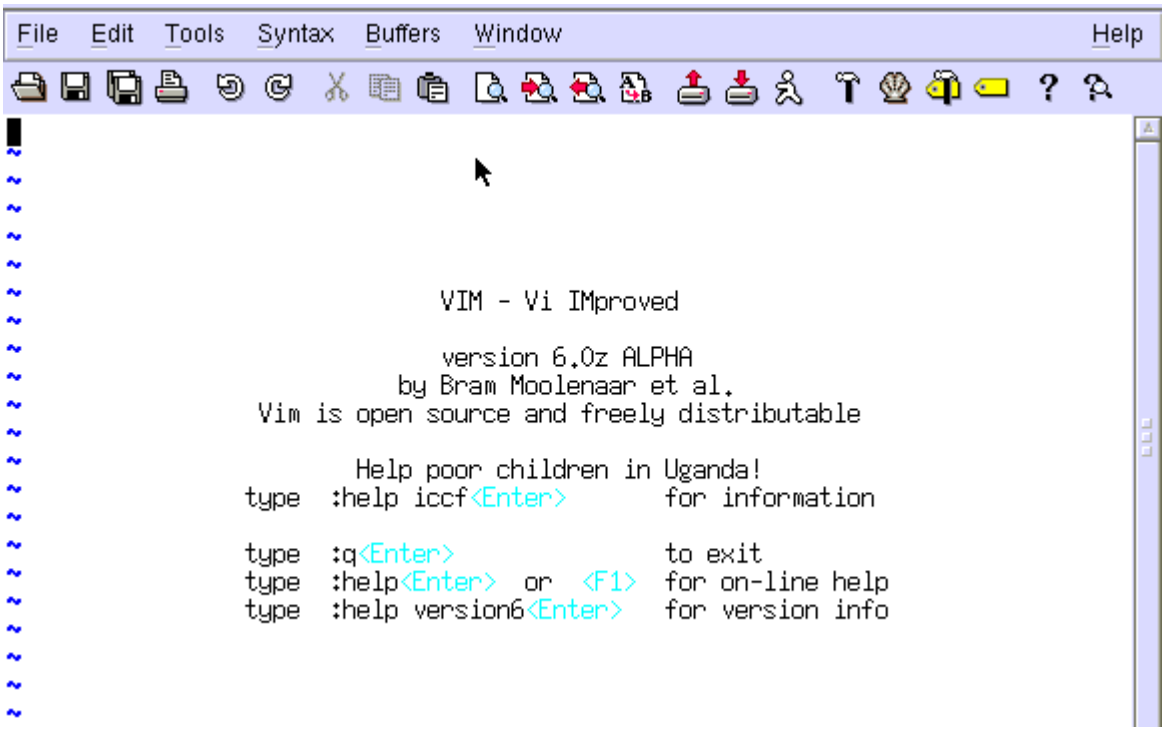


Figure 7-21 Gvim Editor

7.2.5.6 Common Applications linuxconf

This button, if selected, will display a graphical linux configuration application (Figure 7-22). The user can now configure the system as desired. When done, select Quit to return to the System Command screen.

Figure 7-22 Linuxconf Screen

7.2.5.7 Common Applications gcalc

This button, if selected, will display a graphical calculator application (Figure 7-23). The calculator is now displayed. Select file/exit to return to the System command screen.

Figure 7-23 Graphical Calculator Screen

7.2.5.8 Common Applications Top

This button, if selected, will display a summary of the processor usage (Figure 7-24). This display is continually updated, when done press q to quit.

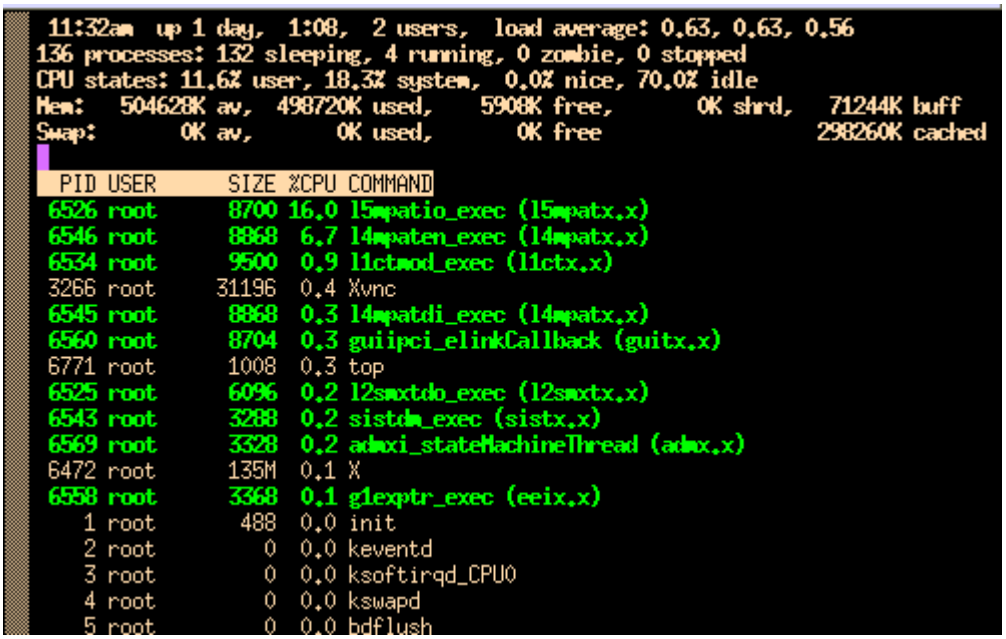


Figure 7-24 Top Display Screen

7.2.5.9 Common Applications ifconfig

This button, if selected, will display a summary of the processor network configuration (Figure 7-25). Press close to quit and return to the System Command window.

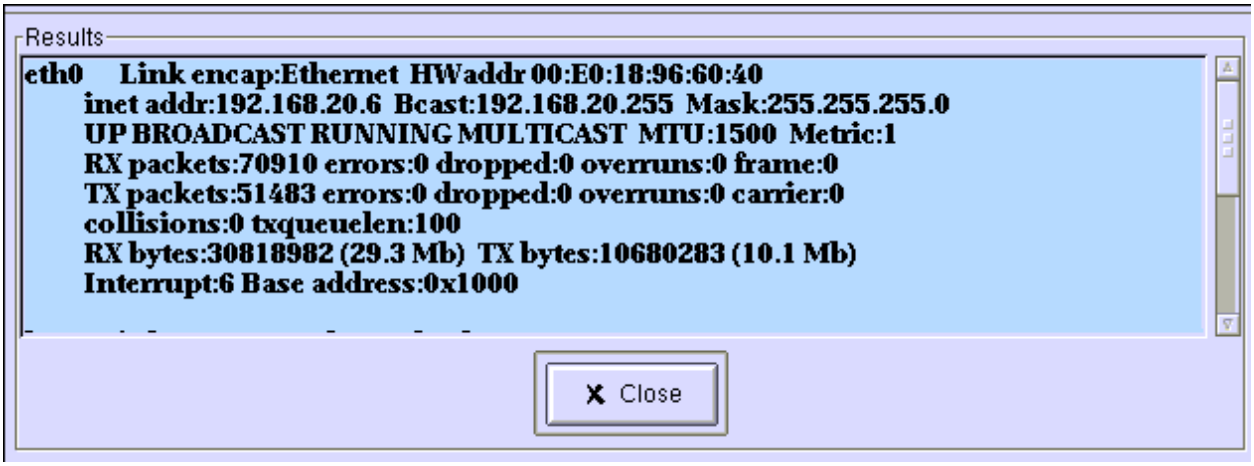


Figure 7-25 ifconfig Screen

7.2.5.10 Common Applications setemb

This button, if selected, will set the system to embedded mode. Press close to quit and return to the System Command window. The system is now in Embedded mode. See Paragraph 6.1 Startup for embedded mode operation description.

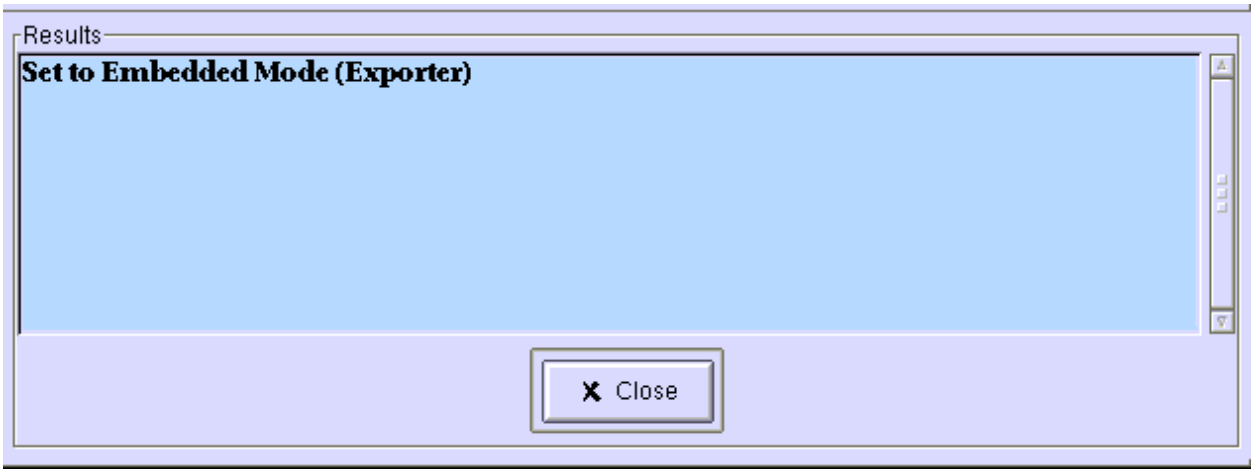


Figure 7-26 Dialog setemb Screen

7.2.5.11 Common Applications setdev

This button, if selected, will set the system to development mode. Press close to quit and return to the System Command window. The system is now in Development mode. See Paragraph 6.1 Startup for development mode operation description.

Figure 7-27 Dialog setdev Screen

7.2.6 GPS Data

The GPS Data button, when selected, displays the GPS Data screen shown in Figure 7-28. This screen displays GPS Version, status, and allows setting of the GPS values.

If the GPS mode is in the **Not Locked mode** (no antenna attached), all the position information can be edited. This information will not be used for transmission unless the system is reset. If the information is changed, a system reset warning screen, Figure 7-29, will be displayed as a reminder.

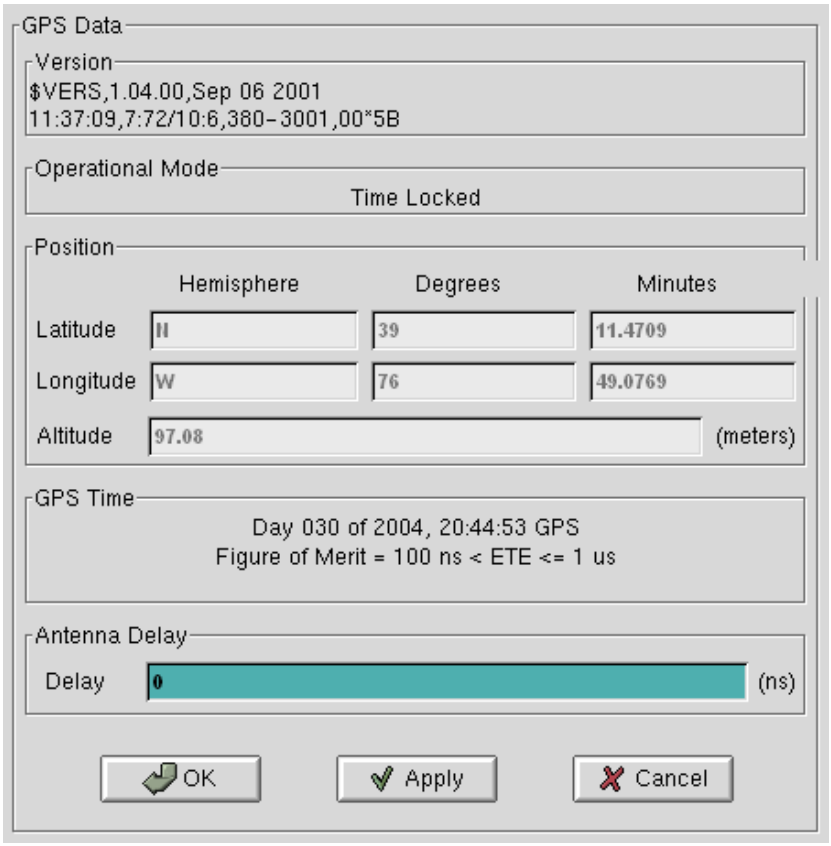


Figure 7-28 GPS Data Screen

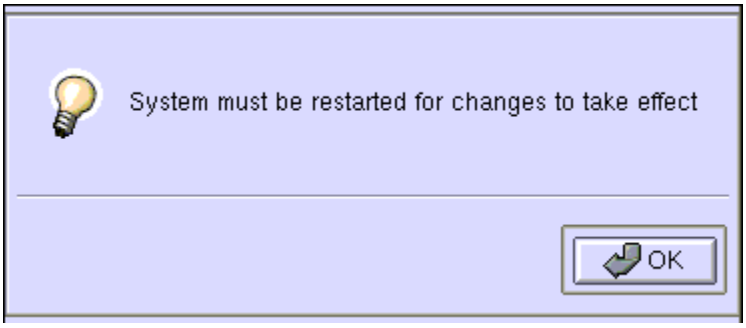


Figure 7-29 System Reset Warning Screen

7.2.6.1 GPS Antenna Delay

This variable is based on GPS cable type and length. Delay values for recommended cable types are listed in Table 7-1 GPS Cabling Delays.

Table 7-1 GPS Cabling Delays

Cable Type	Delay Value
Belden 9311 (RG-58)	4.36 ns/m (1.33 ns/ft)
Belden 8267 (RG-213)	4.99 ns/m (1.52 ns/ft)
Belden 9104 (RG-59)	4.00 ns/m (1.22 ns/ft)
Belden 9913 (RG-8)	3.90 ns/m (1.19 ns/ft)

To determine the proper delay value, multiply the delay value from Table 7-1 by the length of cable used.

For example, if the antenna system includes 50 ft of RG-58 cable, the total cable delay is:

50 ft x 1.33 ns/ft = 66.5 ns

When entering the data round the value to the nearest nanosecond (ns).

When Antenna Delay is selected, Figure 7-28, the Numeric Keyboard screen is displayed, Figure 7-5. To change the delay value, enter the desired delay value using the number keys. Press *Enter* to establish the new delay value and return to the GPS Data screen.

7.2.7 Local Time

See Paragraph 7.1.6.

7.3 Log Tab Control Buttons

Figure 7-30 shows the GUI main screen Log Tab. Descriptions of control buttons displayed on the Log Tab of this screen are provided in the following subparagraphs.

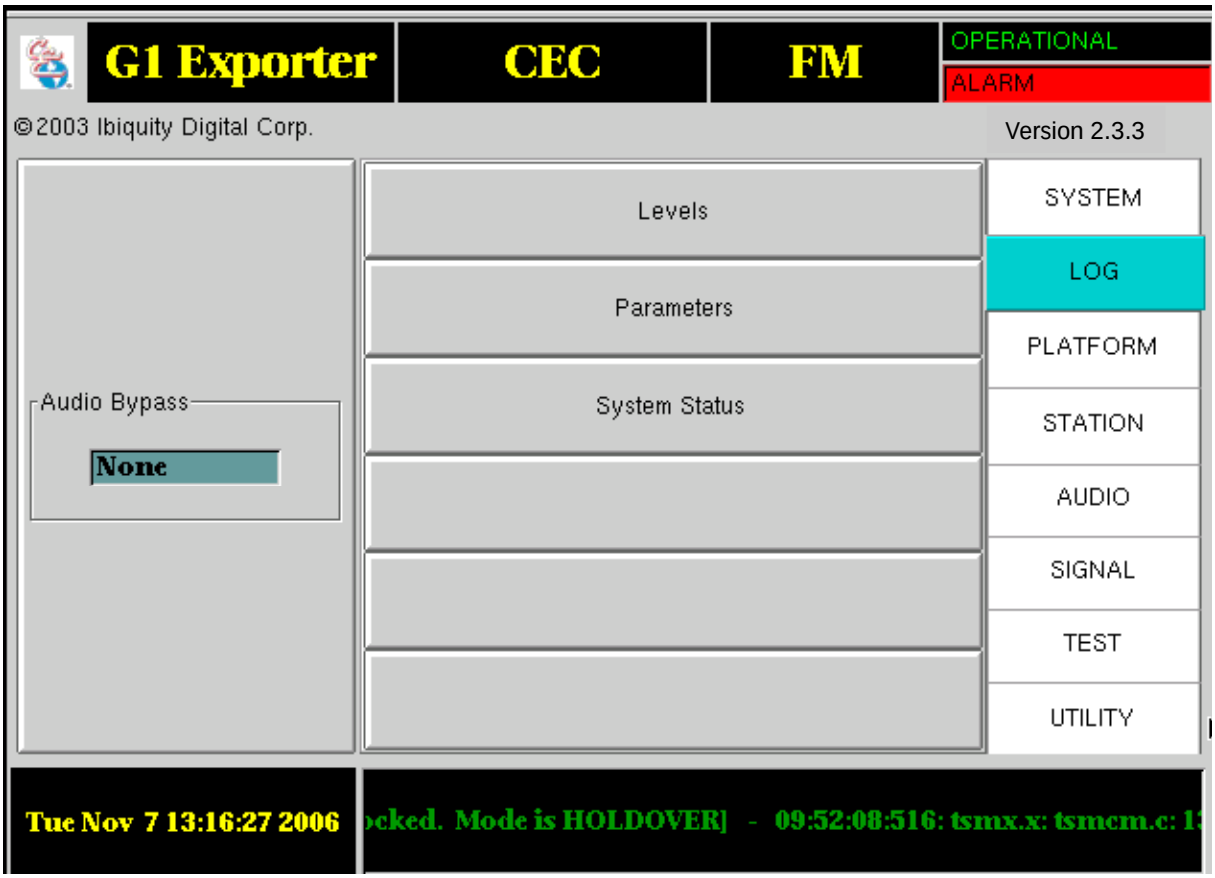


Figure 7-30 Exporter GUI Interface Log Tab

7.3.1 Levels

Select Levels from the Log Tab main menu, to view and update log level information. The Log Levels screen, Figure 7-31, is displayed. To set the logging level for an individual process, set the Log Level to a value 0 through 7 (0=Off, 7=Max). To set the description associated with the screen logging of each process (not to a file), increase the number under the Verbose Level column (0=Off, 7=Max) to the appropriate level. This sets the logging stored in file /mnt/data/irss.log. This file is archived to a date-associated file. For example: /mnt/data/02-19-03/irss02:33:00.log.

7.3.1.1 Previous Page

Select Previous Page to scroll backward through exporter processes.

7.3.1.2 Next Page

Select Next Page to scroll forward through exporter processes.

7.3.1.3 All Log Levels

To set the log level to the same value for all processes, select All Log Levels. Figure 7-32 is displayed. Select the level desired for all processes and press *Close* to enter the new values.

This will log all data with a log level of the selected value or lower.

7.3.1.4 All Verbose Levels

To set the verbose level to the same value for all processes, select All Verbose Levels to display the screen shown in Figure 7-32. Select the desired level and click *Close* to activate the new level.

This will print all data with a verbose level of the selected value or lower.

7.3.1.5 Exclusive Level

Exclusive Level, when selected will only print data that is the same level as the level selected (not lower or higher).

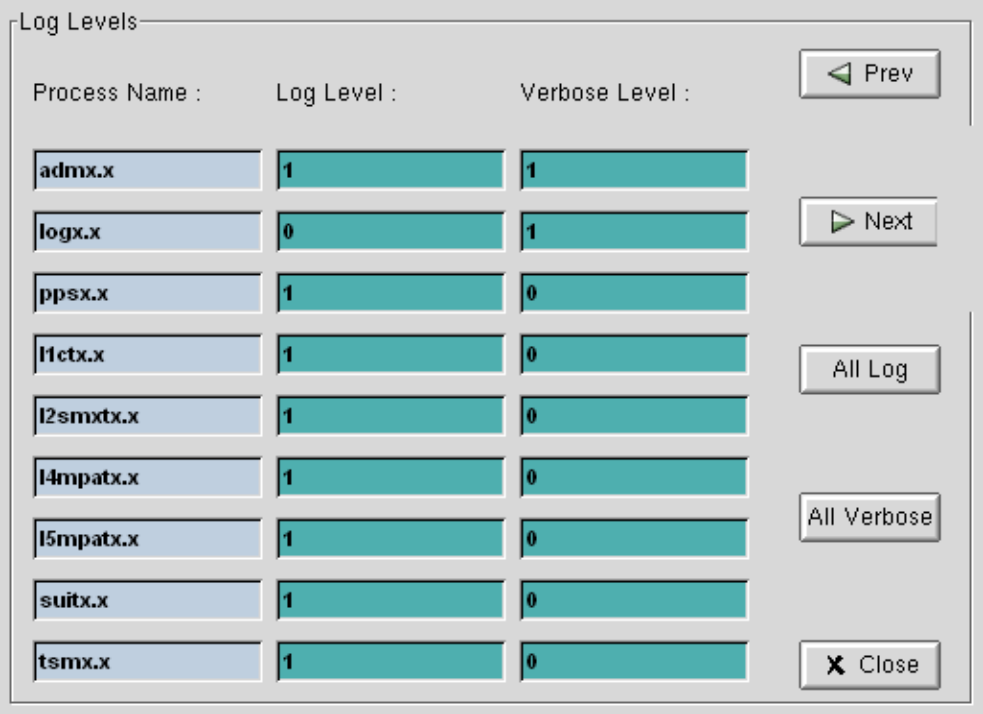


Figure 7-31 Log Level Screen

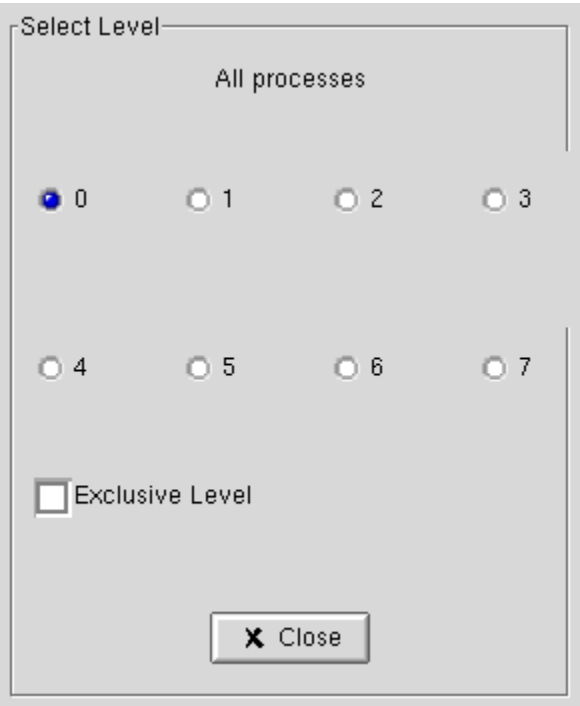


Figure 7-32 Select Level Screen

7.3.2 Parameters

Select Parameters from the Log main menu. The Log Parameters screen (Figure 7-33) is displayed. This screen will display the present logging utilization and allow for the setting of warning parameters.

7.3.2.1 Warning Message Rate

When Warning Message Rate is selected, the Numeric Keyboard screen is displayed (Figure 7-5). To set how often the user is warned that the maximum log rates have been exceeded, enter the desired time in seconds. Press enter to use the new value and return to the Log Parameters screen.

7.3.2.2 Window Size (sec):

When Window Size is selected, the Numeric Keyboard screen is displayed (Figure 7-5). To set the duration over which the logging rate is calculated, enter the desired time in seconds. Press enter to use the new value and return to the Log Parameters screen.

7.3.2.3 ASCII Log Rate (bytes/sec):

ASCII Log Rate displays the instantaneous amount of ASCII logging.

7.3.2.4 ASCII Log Utilization:

ASCII Log Utilization displays the instantaneous amount of ASCII logging represented as a percentage of the maximum rate.

7.3.2.5 ASCII Log Max Rate:

When Max ASCII Log Rate is selected, the Numeric Keyboard screen is displayed (Figure 7-5). To set the log rate for which, if exceeded, a warning will be issued, enter the desired rate. Press enter to use the new value and return to the Log Parameters screen.

7.3.2.6 Binary Log Rate (bytes/sec):

Binary Log Rate displays the instantaneous amount of Binary logging.

7.3.2.7 Binary Log Utilization:

Binary Log Utilization displays the instantaneous amount of Binary logging represented as a percentage of the Maximum rate.

7.3.2.8 Binary Log Max Rate:

When Max Binary Log Rate is selected, the Numeric Keyboard screen is displayed (Figure 7-5). To set the log rate for which, if exceeded, a warning will be issued, enter the desired rate. Press enter to use the new value and return to the Log Parameters screen.

7.3.2.9 Start Archive

When *Start Archive* is selected, all log files in the /mnt/data path along with any core files in the bin/tx path will be collected and placed in the specified archived file.

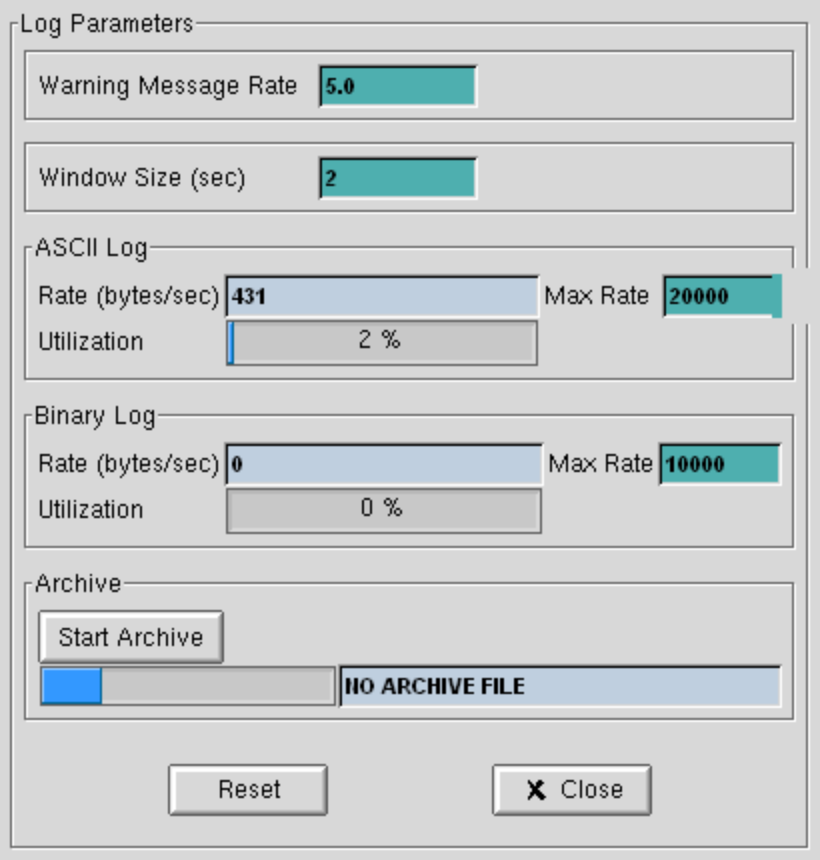


Figure 7-33 Log Parameters Screen

7.3.3 System Status

See Paragraph 7.1.7.1.

7.4 Platform Tab Control Buttons

Figure 7-34 shows the GUI main screen Platform Tab. Descriptions of control buttons displayed on the Platform Tab of this screen are provided in the following subparagraphs.

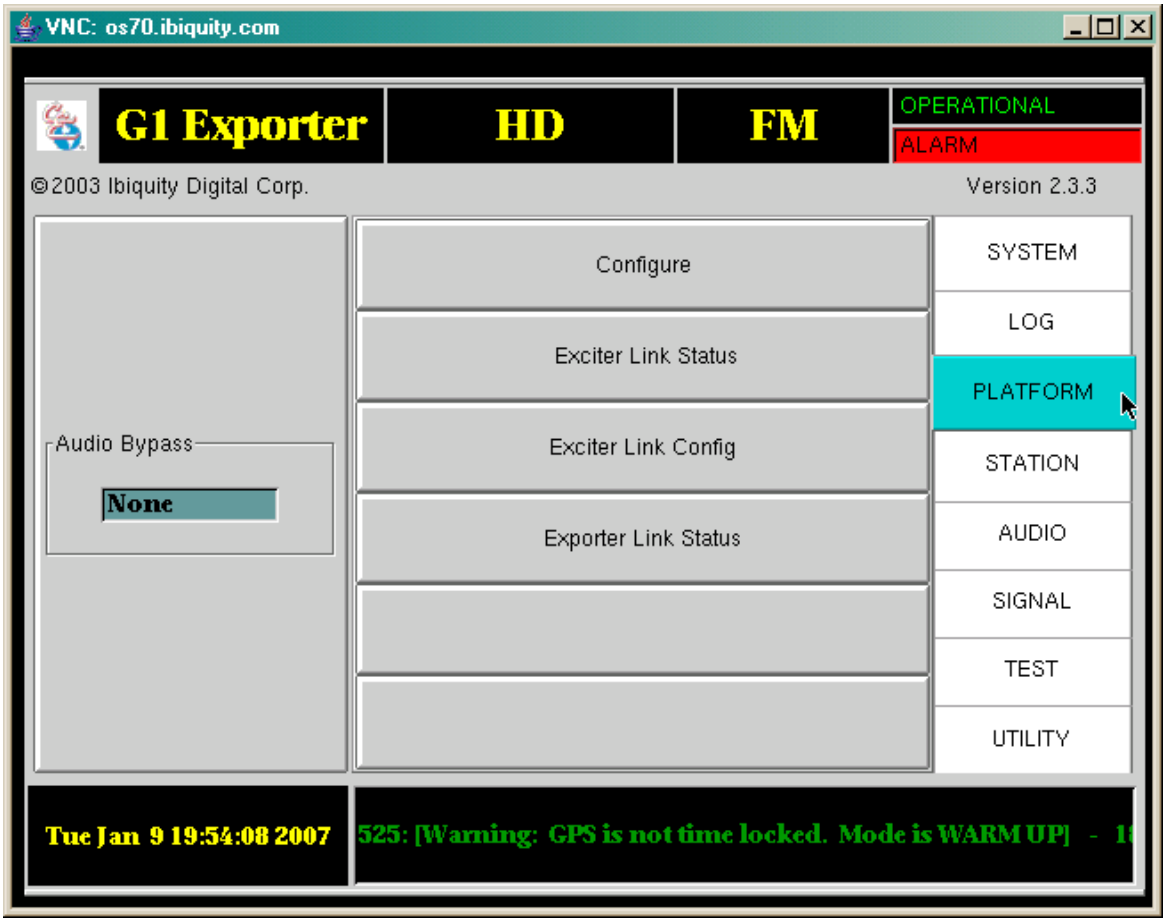


Figure 7-34 Exporter GUI Interface Platform Tab

7.4.1 Exciter Link (E2X) Config

When the Exciter Link Config button is pressed, the window shown in Figure 7-35 is displayed. This window is divided into 4 group boxes: Protocol, IP Address, MAC Address, and Exciter Reset Delay.

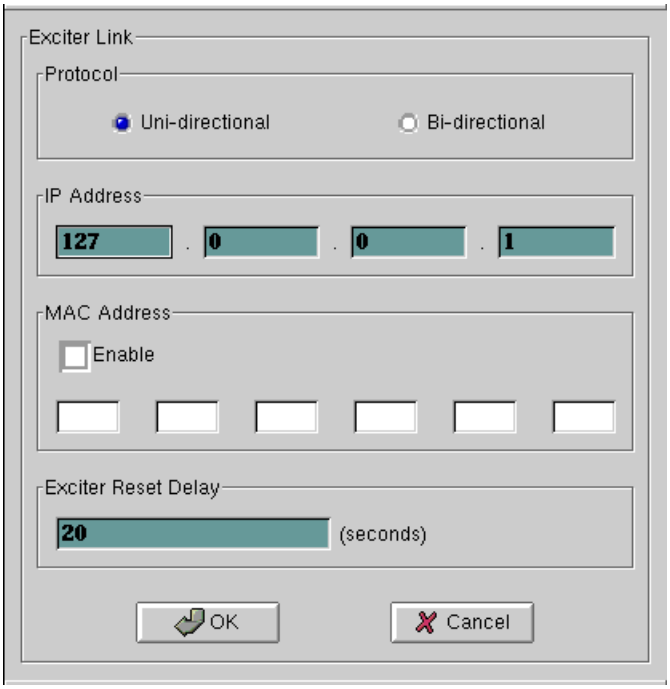


Figure 7-35 E2X Configuration Menu

7.4.1.1 Protocol

The two choices for the communications protocol between the Exporter and Exgine are Uni-directional (UDP/IP) and Bi-directional (TCP/IP).

7.4.1.2 IP Address

Use the numerical touch pad to enter the IP address of the Exgine subsystem.

7.4.1.3 MAC Address

For true uni-directional links the IP address must be resolved in the Exporter ARP table. First select the enable box and then enter the MAC address of the Exgine subsystem.

7.4.1.4 Exciter Reset Delay

The Exgine subsystem must be started and waiting for messages from the Exporter before the Exporter can begin sending data. To guarantee this condition is established, the Exporter will wait a set amount of time after a restart command is issued to restart itself. This time is configurable using the Exciter Reset Delay.

7.4.2 Exciter (E2X) Link Status

The Exciter Link Status window provides information on the status of the E2X link. The Status window is sub-divided into 3 major areas: Statistics, Bits per Second, and History.

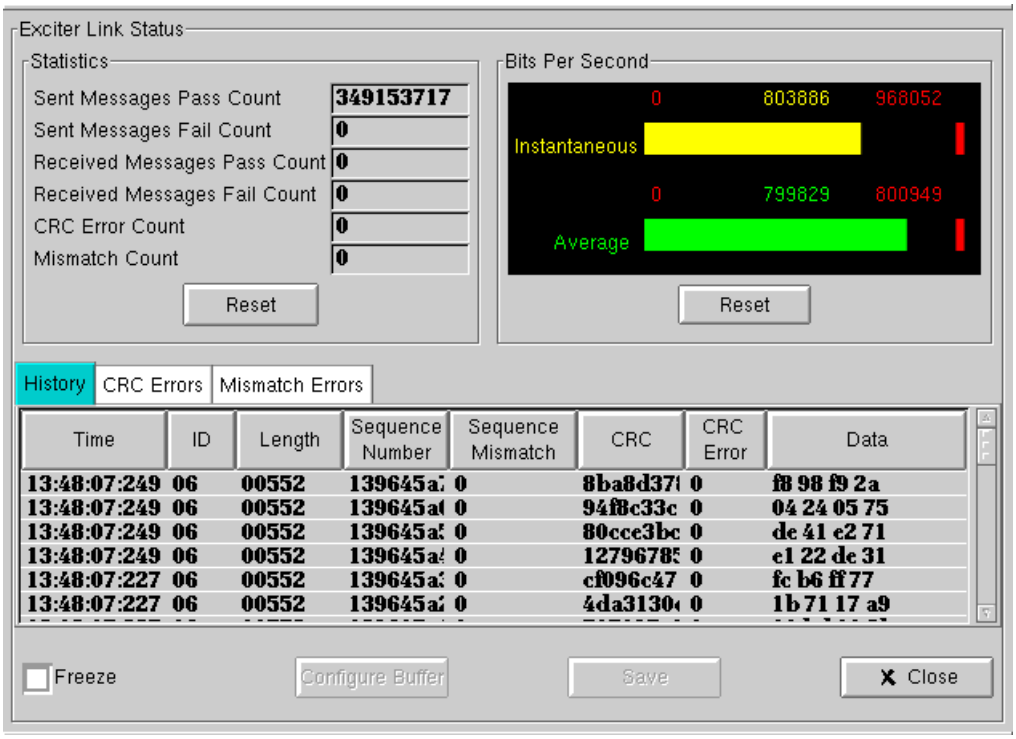


Figure 7-36 E2X Link Status Window

7.4.2.1 Statistics

This portion of the window provides statistics on the number of messages sent, the number of messages that failed to send, the number of messages received correctly, the number of messages that failed to be received, the number of messages received with CRC errors, and the number of messages received out of order. For the Exporter, only the Sent Message Pass/Fail Count has any meaning. The Received Message statistics and the CRC Error and mismatch counts are zero by default, since the Exporter is not receiving any messages.

These counts can be reset by pressing the “Reset” Button within the group box.

7.4.2.2 Bits Per Second

This area presents a bar graph of the bandwidth usage. Both the instantaneous bit-rate and the long-term average bit-rate is displayed. The reset button should be pressed before using this display.

7.4.2.3 History

The history portion of the window provides scrolling details of each message sent across the E2X link. Again, the Sequence Mismatch and CRC errors do not have any relevance on the transmit side of the link. These are more appropriate on the Exgine side. To freeze the scrolling and examine individual messages more closely, check the “Freeze” box. When this box is checked, the “Configure Buffer” and “Save” buttons will be activated.

When the “Configure Buffer” button is selected, the window shown in Figure 7-37 appears. Use this to set the number of messages to be saved to file. Use the “Save” button to choose a location and file name for the message buffer.

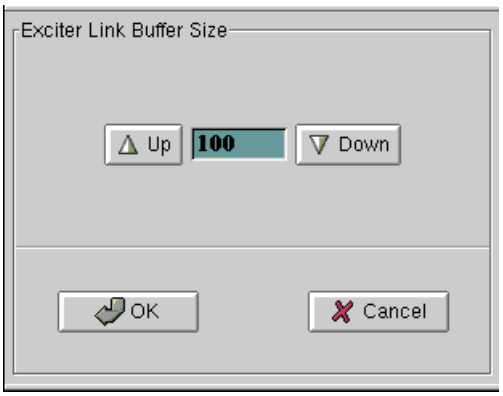


Figure 7-37 Setting the message buffer size.

7.4.3 Exporter I2E Link Status

The Exporter Link Status window provides status for Exporter Link (I2E) activities, Figure 7-38.

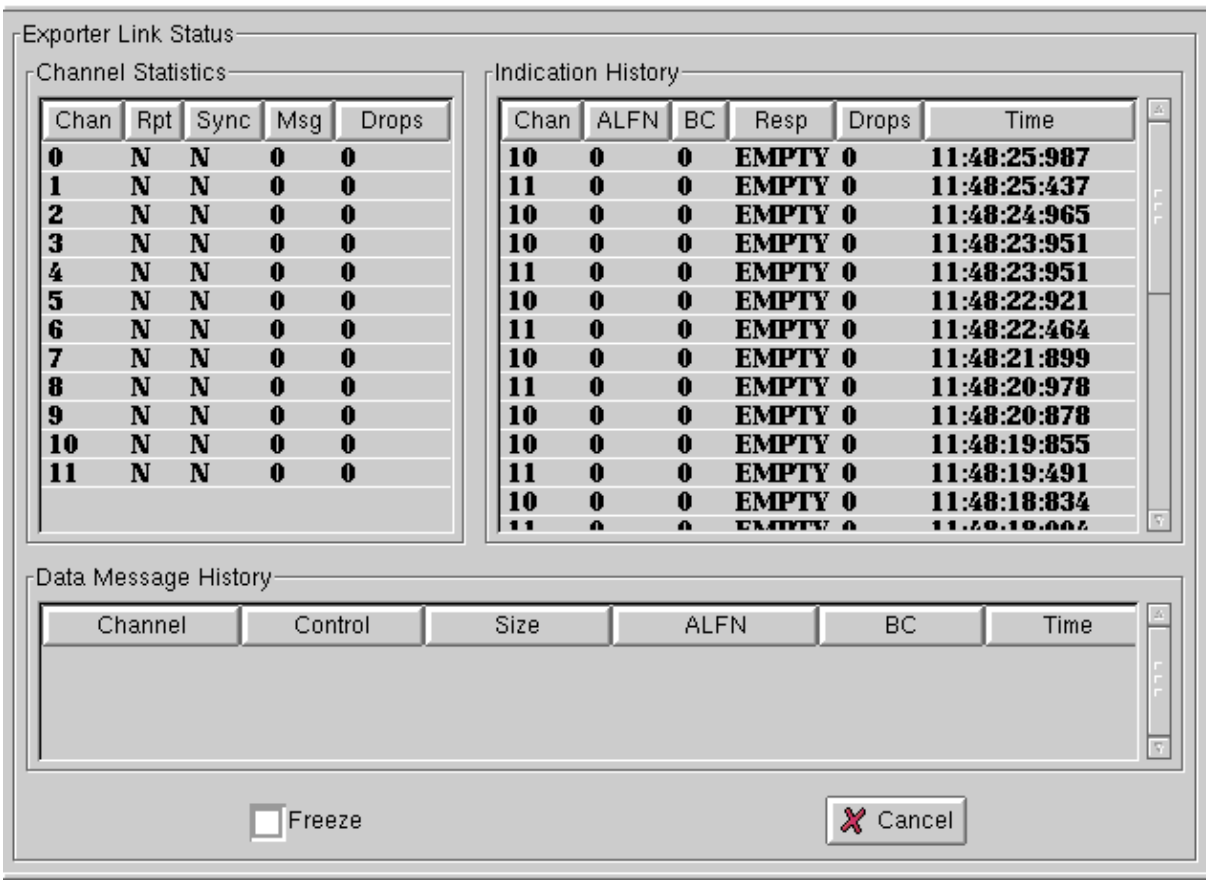


Figure 7-38 EL Activity Monitor Screen

7.4.3.1 Channel Statistics

The Channel Statistic Panel is a static list consisting of five columns with 12 rows. On every command response, this panel will be updated by replacement of the entire panel. The columns are Channel, Repeat, Synchronize, Number of Messages to send and Number of messages dropped. The rows show all channels from channel zero to channel eleven. Channel zero to nine represents logical channel one to nine of the layer one modem. Channel ten is the ancillary channel and channel eleven is the opportunistic channel.

7.4.3.2 Indication History

The Indication History Panel is an additive scrolling list consisting of six columns. On every command response, new statistics are added by appending. These columns are Channel, ALFN, BC, Response, Drops and Time. The Channel column shows the channel id and has a value of zero to eleven. The ALFN column shows the absolute frame number for the message to be sent and has a non-negative value. The BC column shows the block count for the message to be sent and has a value of zero to fifteen. The Response column shows the type of response from EL and has value of Data, Empty or Repeat. The value Data indicates a new data response from the channel message queue. The value of empty indicates an empty data response. The value Repeat indicates a repeat data response from the last data response. The Drops column shows number of messages that are being dropped from the channel message queue prior to the data response. Message drops could only happened if the channel is set to synchronize. The Time column shows when an indication is received.

7.4.3.3 Data Message History

The Data Message Receiving History Panel is an additive scrolling list containing six columns. On every command response, new history is added by appending. The columns are Channel, Control, Size, ALFN, BC and Time. The Channel column shows the channel id. The Control column shows the control parameter. They are Empty, Repeat, No Repeat, Flush, Synchronize and Non-synchronize. The Size column shows the size of the message. The ALFN shows the absolute frame number of that message and the BC column shows the block count of that message. The Time column shows the time the message is received.

7.5 Station Tab Control Buttons

Figure 7-39 shows the GUI main screen Station Tab. Descriptions of control buttons displayed on the Station Tab of this screen are provided in the following subparagraphs.

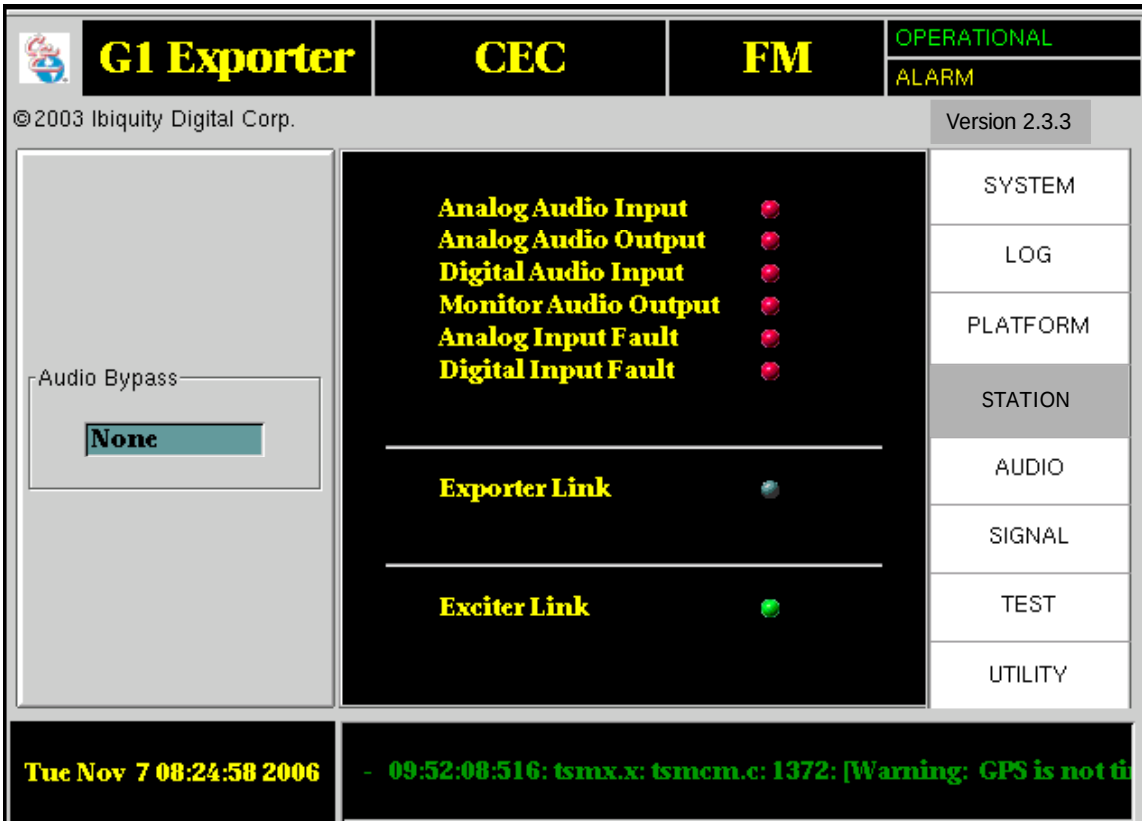


Figure 7-39 Exporter GUI Interface Station Tab

7.5.1 Station Information Schedule

The Station Information Schedule, Figure 7-40, is displayed when selected from the main menu.

Select the block and payload to be changed, select the payload option desired, and press *OK* to enter the new settings and return to the main menu.

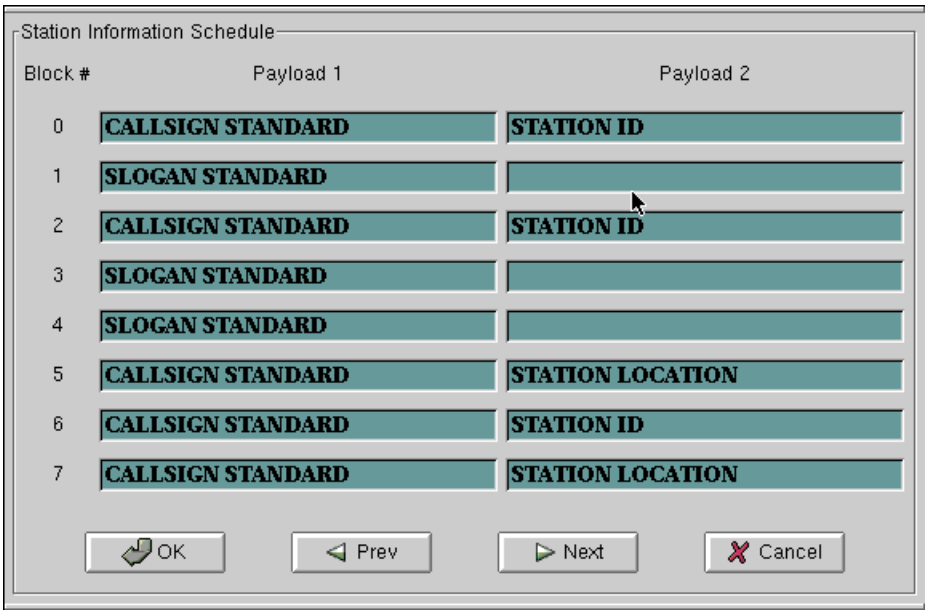


Figure 7-40 Station Information Schedule Screen

Care must be taken when selecting payload options as some options are not compatible with other options. For example Slogan Universal requires both payloads, so Payload 2 must be left blank. If an incompatible payload is selected a warning message similar to Figure 7-42 will be displayed.

Figure 7-41 Station Information Payload Selection

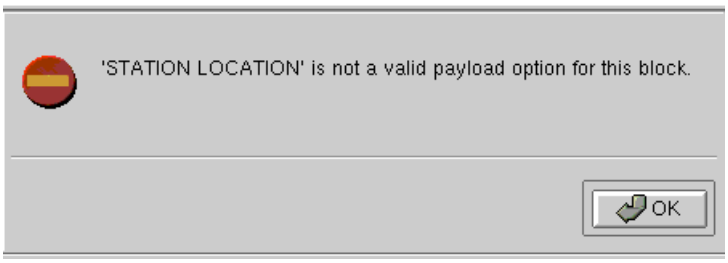


Figure 7-42 Incompatible payload option warning message.

7.5.2 Station Information

See Paragraph 7.1.2.

7.5.3 Station Default PAD

The Station's default PAD information, Figure 7-43, is displayed when selected from the Station main menu. This menu has four tabs: General, Comment, Commercial, and Last Message Sent. Each tab is described in turn.

7.5.3.1 General

Use this tab shown in Figure 7-43 to enter the Title, Artist, Album, and Genre information by selecting the desired field and using the alphanumeric keyboard similar to the one in Figure 7-7. To include this information as part of the PAD message make sure the "Enable" box is checked. Clearing the Enable box will exclude this information from being sent.

Note: Even though Genre is a text field, the user should select one of the types defined in the IDS standard, if possible.

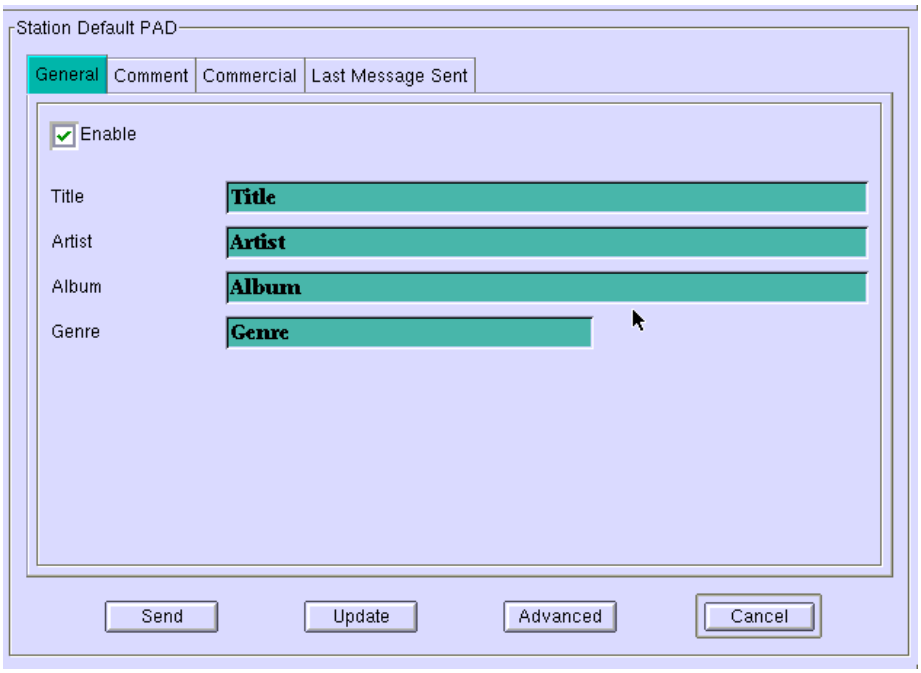


Figure 7-43 Station Default PAD (General Tab)

7.5.3.2 Comment

Use this tab shown in Figure 7-44 to enter the Comment Title and Comment Description information by selecting the desired field and using the alphanumeric keyboard similar to the one in Figure 7-7. To include this information as part of the PAD message make sure the “Enable” box is checked. Clearing the Enable box will exclude this information from being sent.

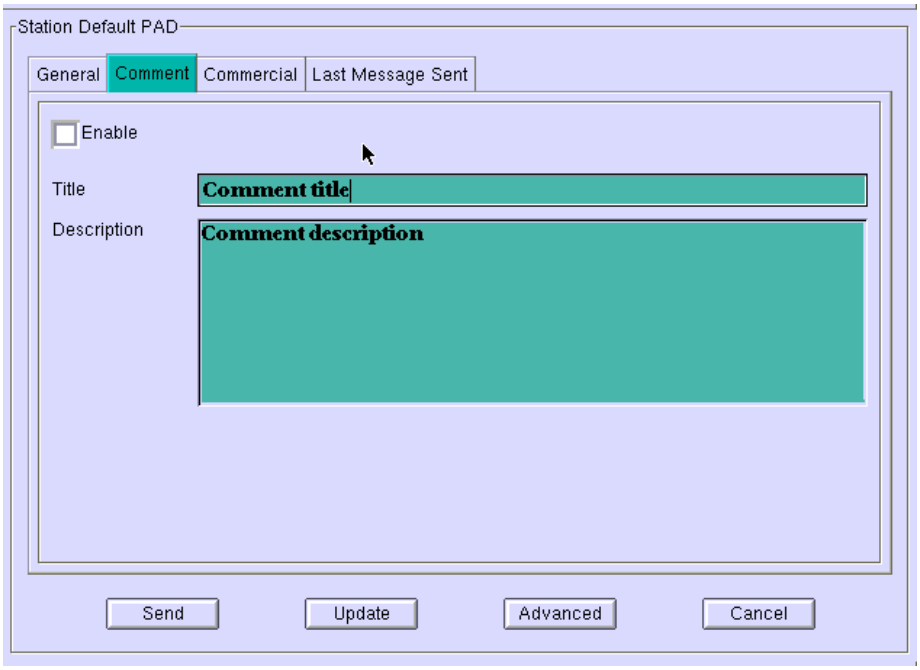


Figure 7-44 Station Default PAD (Comment Tab)

7.5.3.3 Commercial

Use this tab shown in Figure 7-45 to enter the Commercial information by selecting the desired field and using the alphanumeric keyboard similar to the one in Figure 7-7. To include this information as part of the PAD message make sure the “Enable” box is checked. Clearing the Enable box will exclude this information from being sent.

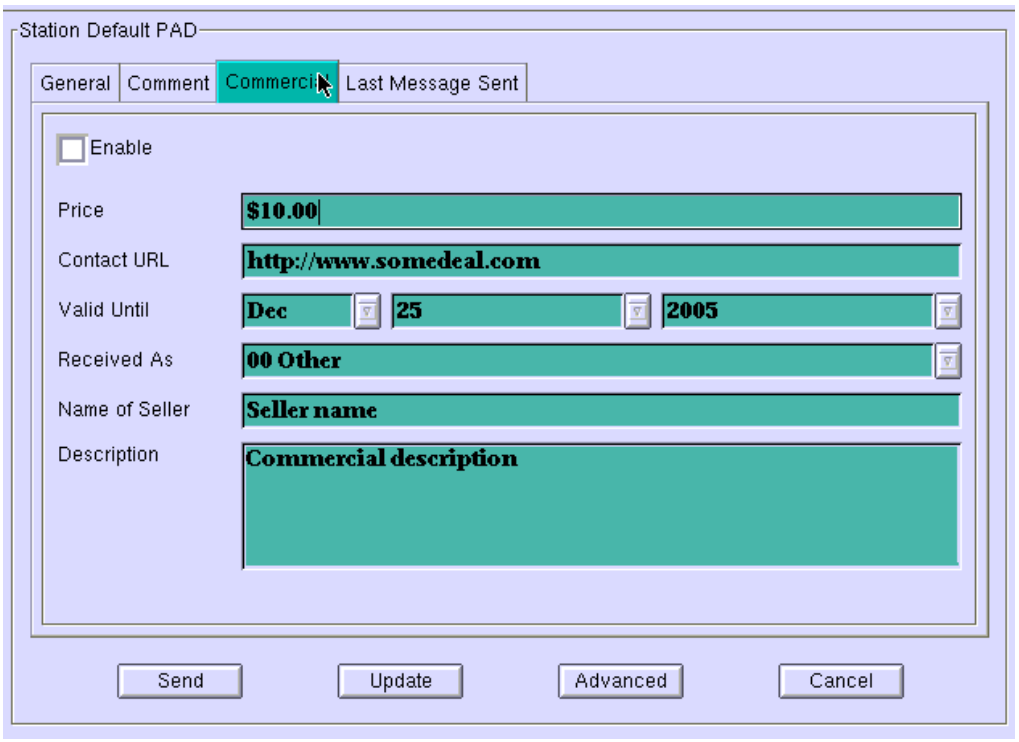


Figure 7-45 Station Default PAD (Commercial Tab)

7.5.3.4 Last Message Sent

Use this tab, shown in Figure 7-46 , to view the last message sent in ID3 format.

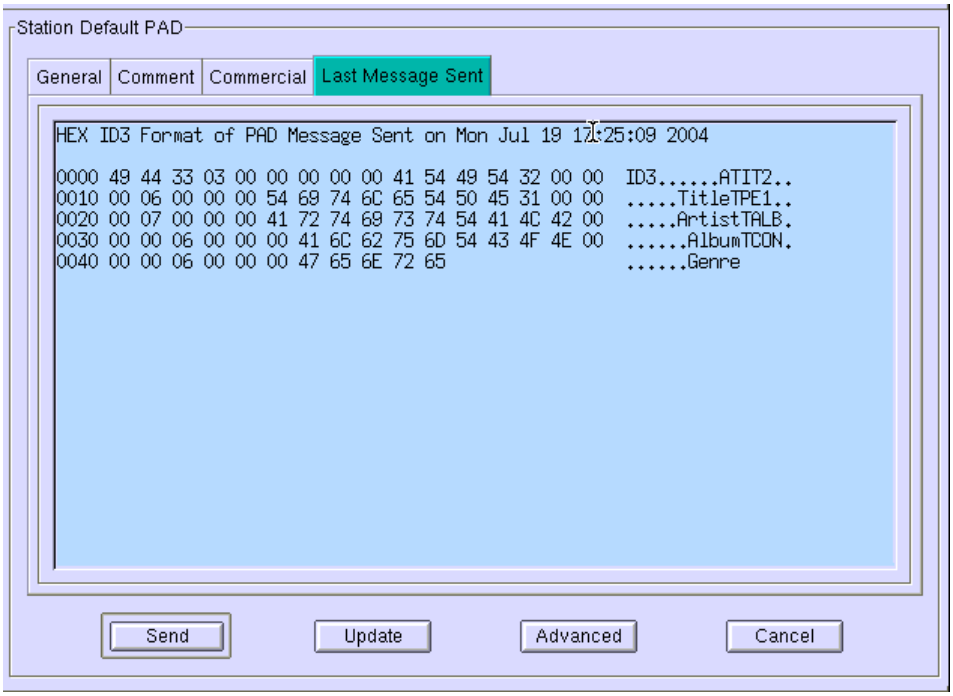


Figure 7-46 Station Default PAD (Last Message Sent Tab)

In addition to the four tabs, the Station Default PAD screen also has four buttons: Send, Update, Advanced, and Cancel.

7.5.3.5 Send

When pressed, the current information in the General, Comment and Commercial screens, if enabled, will be queued for transmission as indicated by the screen shown in Figure 7-47.

Figure 7-47 PAD Information Sent acknowledgement message.

7.5.3.6 Update

When pressed, the current information in the General, Comment, and Commercial screens is saved as part of the default configuration for that Service Mode as indicated by the acknowledgement message shown in Figure 7-48.

Figure 7-48 PAD Configuration update acknowledgement.

7.5.3.7 Advanced

When pressed the screen shown in Figure 7-49 is displayed. This screen sets the various parameters used to control the PAD generation tool. Select the desired option and press OK for the selection to take place or press Restore Default to return to the default settings. Pressing Cancel will return to the Station Default PAD screen with no changes.

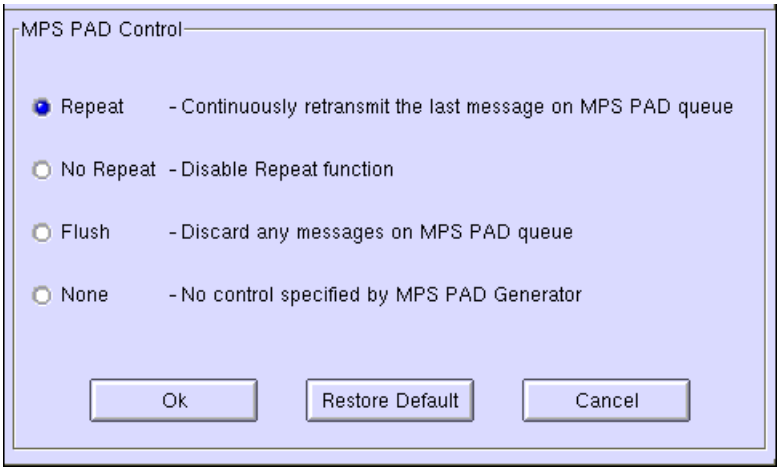


Figure 7-49 MPS PAD Control screen.

7.5.3.8 Cancel

Use Cancel to return to the main Station screen.

7.5.4 Station Program Control

The station's programming genre selection, Figure 7-50, is displayed when the Select Station Program Control is selected.

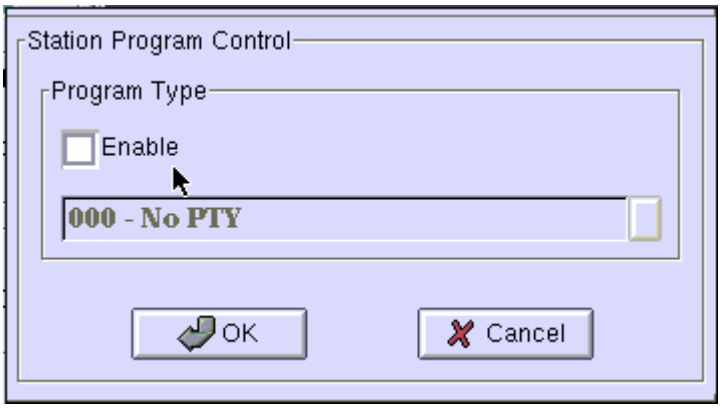


Figure 7-50 Station Program Control screen

This menu allows the user to send a genre type embedded in the main program audio bit-stream. Once "Enable" is checked, the genre information will be sent as part of the main program audio bit-stream. The change the genre, use the pull down menu and select the genre type most appropriate.

7.6 Audio Tab Control Buttons

Figure 7-51 shows the GUI main screen Audio Tab. Descriptions of control buttons displayed on the Audio Tab of this screen are provided in the following subparagraphs.

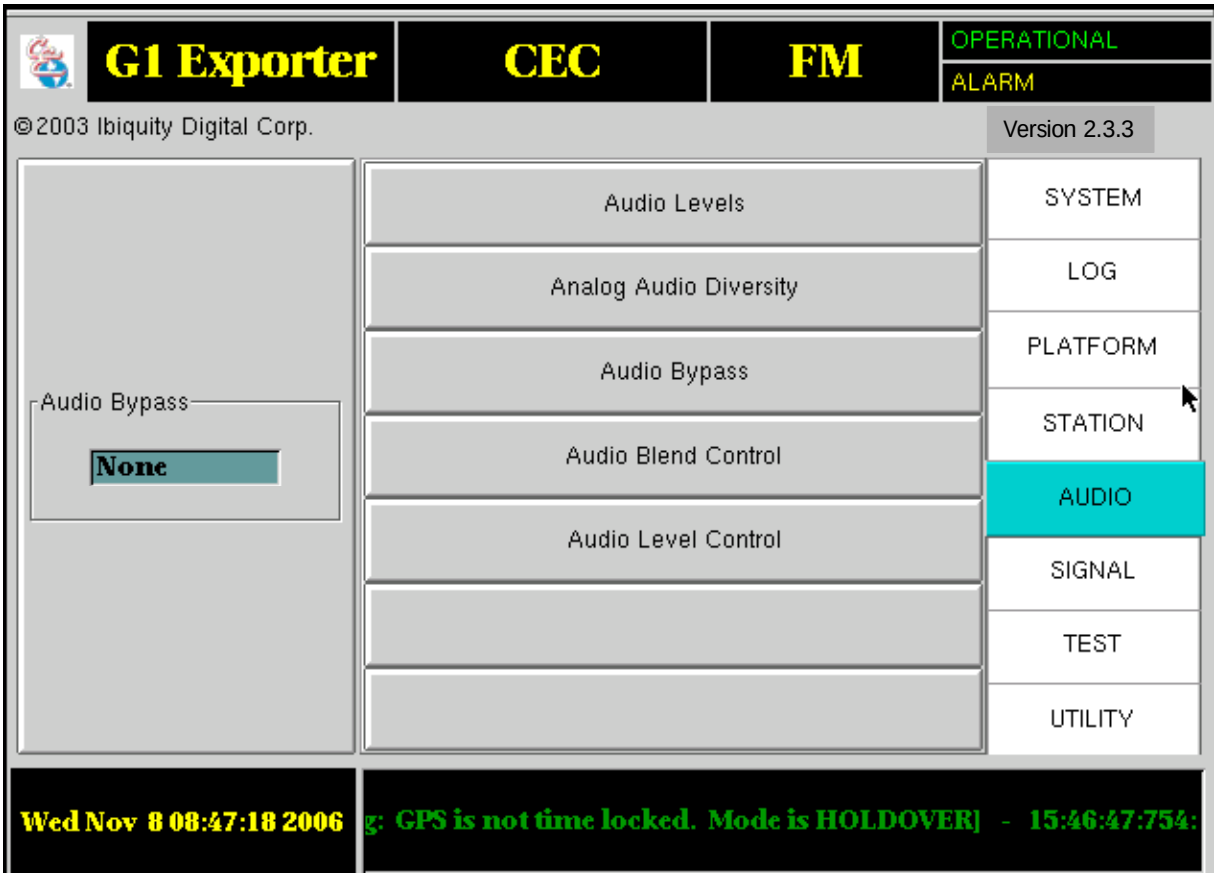


Figure 7-51 Exporter GUI Interface Audio Tab

7.6.1 Audio Levels

This button, if selected, will display a dynamic Audio Levels screen, Figure 7-52.

7.6.1.1 Range (dB)

Select this option to change the Minimum value (left most value of audio bars) of the audio Bar graph. The Numeric Keyboard (Figure 7-5) is displayed. To change the Range, in dB down from Full Scale, enter the new value using the number keys.

7.6.1.2 Average (sec)

Select this option to change the time over which the average of audio power is taken to be displayed as the green portion of the audio Bar graph. The Numeric Keyboard (Figure 7-5) is displayed. To change the average time, enter the new value using the number keys.

NOTE: If this number is larger than the peak and/or peak hold numbers they will be changed to equal the Average time.

7.6.1.3 Peak (sec)

Select this option to change the time over which the peak of audio power is taken to be displayed as the Yellow portion of the audio Bar graph. The Numeric Keyboard (Figure 7-5) is displayed. To change the Peak time, enter the new value using the number keys.

NOTE: If this number is larger than the peak hold number it will be changed to equal the Peak time.

7.6.1.4 Peak Hold (sec)

Select this option to change the time over which the peak of audio power is taken to be displayed as the Red portion of the audio Bar graph. The Numeric Keyboard (Figure 7-5) is displayed. To change the Peak Hold time, enter the new value using the number keys.

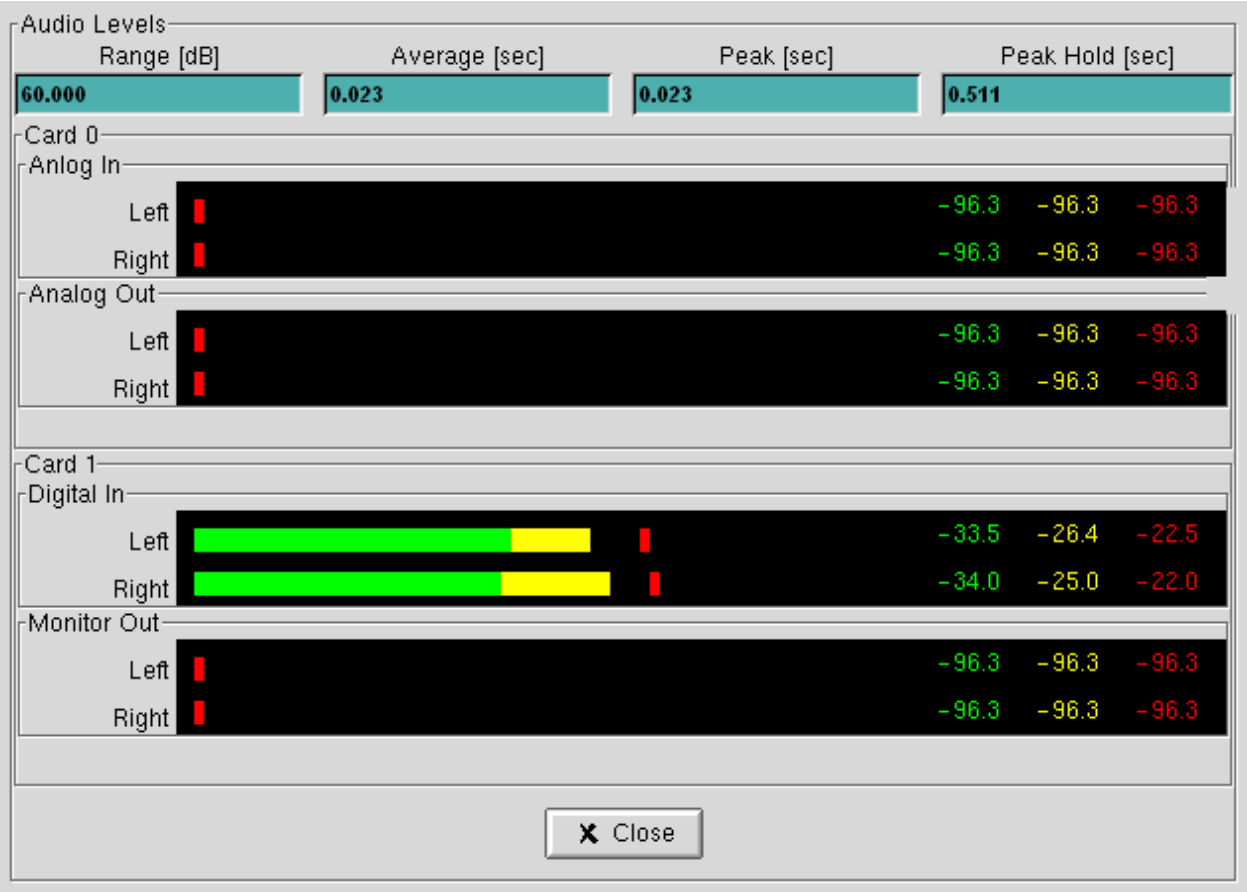


Figure 7-52 Audio Levels Screen

7.6.2 Analog Audio Diversity

This button, if selected, will display the Analog Audio Diversity Screen, Figure 7-53.

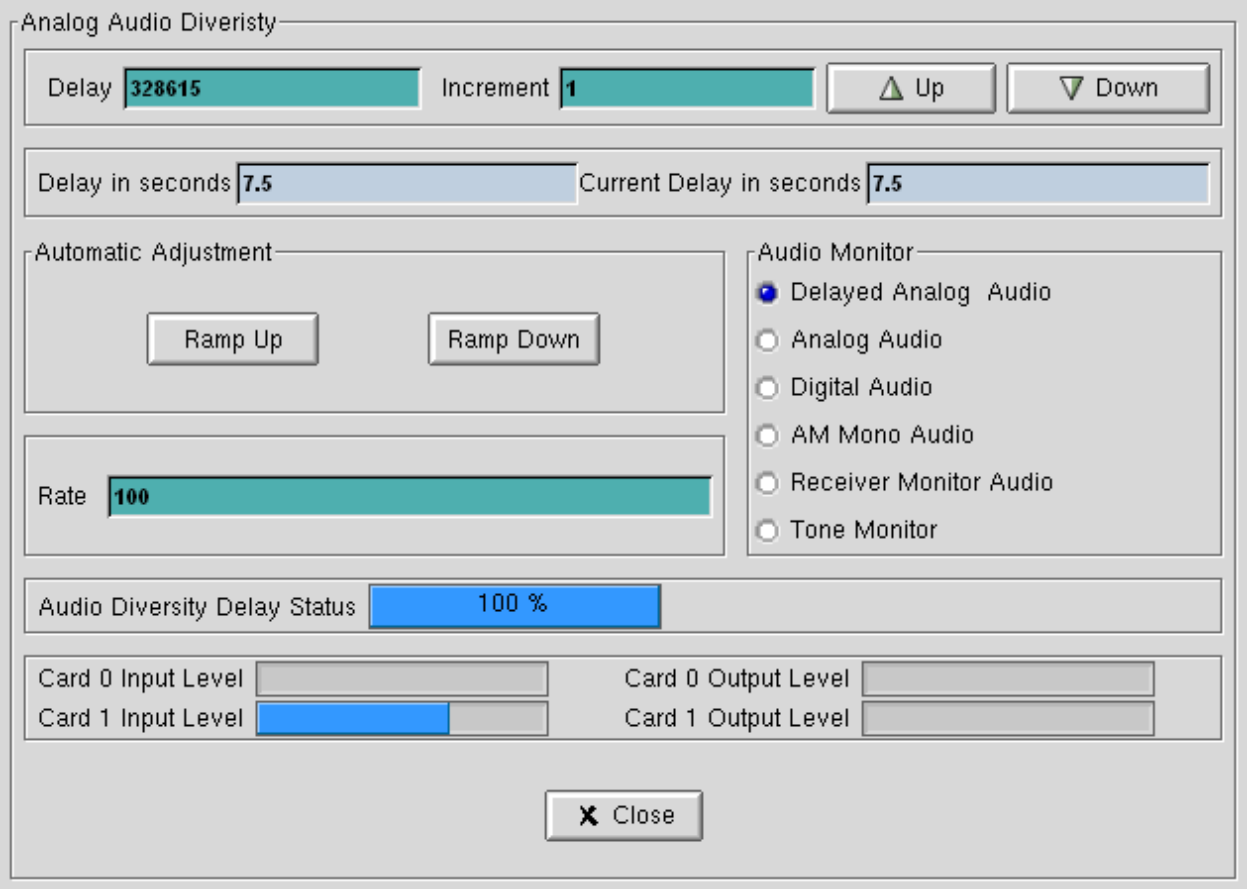


Figure 7-53 Analog Audio DiversityScreen

7.6.2.1 Delay

Not Used.

7.6.2.2 Increment

Not Used.

7.6.2.3 Delay in seconds

Not Used.

7.6.2.4 Current Delay in seconds

Not Used.

7.6.2.5 Automatic Adjustment Ramp Up

Not Used.

7.6.2.6 Automatic Adjustment Ramp Down

Not Used.

7.6.2.7 Rate

Not Used.

7.6.2.8 Audio Monitor

Not Used.

7.6.2.9 Audio Diversity Delay Status

Not Used.

7.6.2.10 Audio Card 0 Input Level

The Audio Card 0 Input Level indicator displays activity on the audio card 0 input path.

7.6.2.11 Audio Card 0 Output Level

The Audio Card 0 Output Level indicator displays activity on the audio card 0 output path.

7.6.2.12 Audio Card 1 Input Level

Not Used.

7.6.2.13 Audio Card 1 Output Level

Not Used.

7.6.3 Audio Bypass

Not Functional.

7.6.4 Audio Blend Control

Not Functional.

7.6.5 Audio Level Control

The exciter can transmit control information to the receiver to indicate adjustments between the analog and digital audio. When selected a numeric keyboard screen similar to Figure 7-5 is displayed. To change the recommended level adjustment, enter the desired value using the number keys. Press “Enter” to establish the new value and return to the Audio screen.

7.7 Utility Tab Control Buttons

Figure 7-54 Exporter GUI Interface Utility Tab shows the GUI main screen Utility Tab. Descriptions of control buttons displayed on the Utility Tab of this screen are provided in the following subparagraphs.

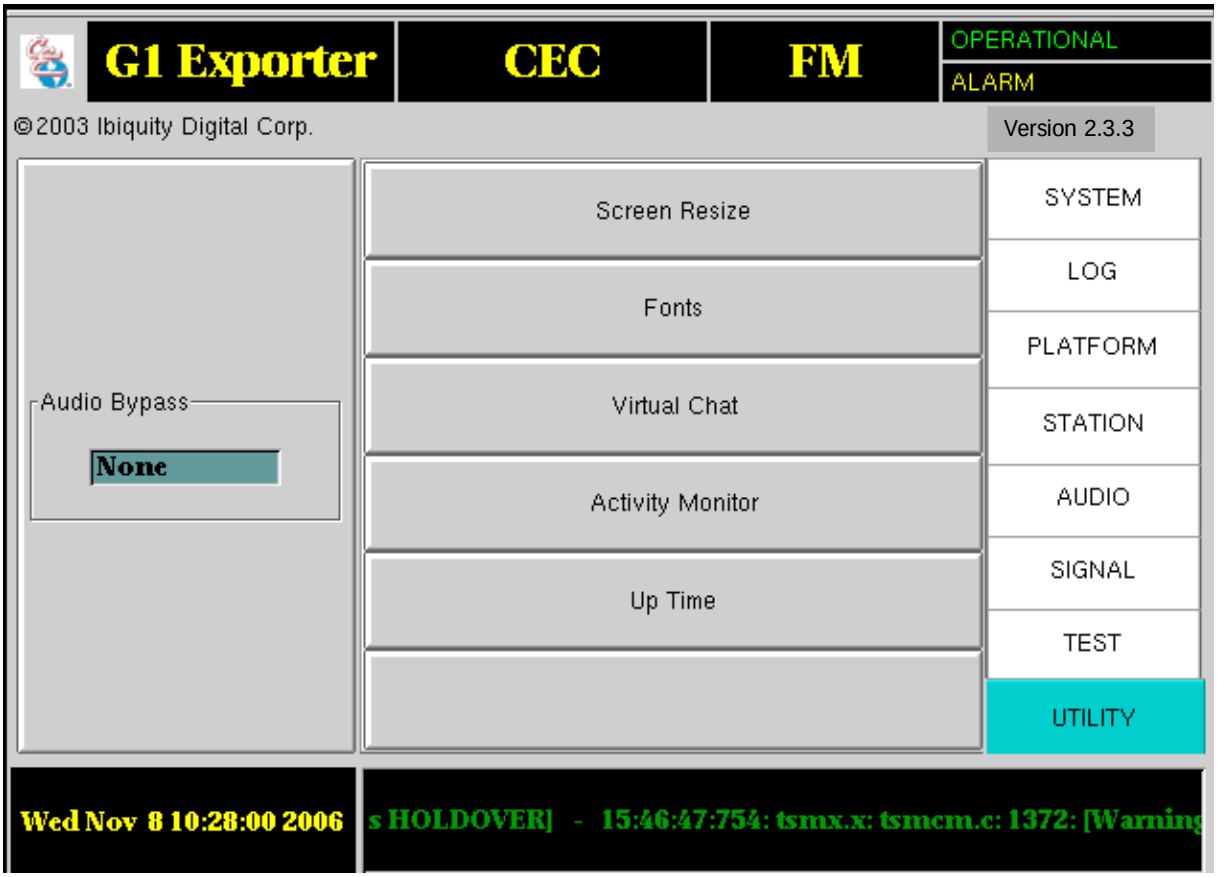


Figure 7-54 Exporter GUI Interface Utility Tab

7.7.1 Screen Resize

The Screen Resize window allows the user to change the dimensions of the display, Figure 7-55.

7.7.1.1 Width Value

This displays the present value of the screen width. This can be raised or lowered using the + or – buttons.

7.7.1.2 Height Value

This displays the present value of the screen height. This can be raised or lowered using the + or – buttons.

7.7.1.3 Test

When selected, Test will display a test screen, Figure 7-56. Verify that the entire border is visible and select OK when complete.

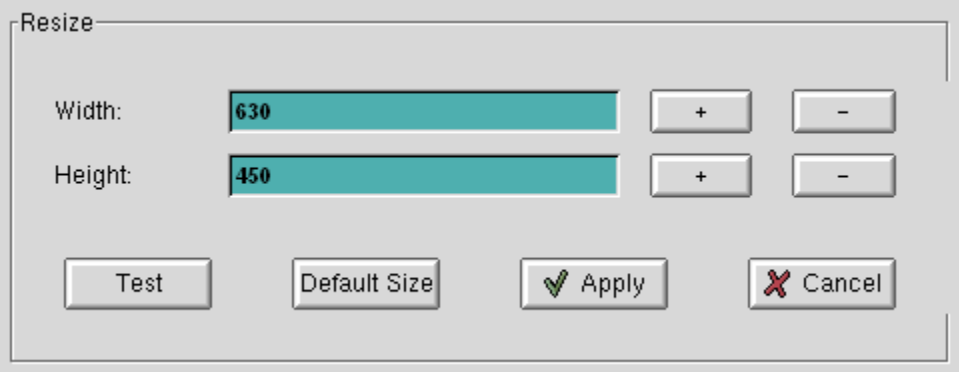


Figure 7-55 Screen Resize Screen

Figure 7-56 Screen Size Test Screen

7.7.1.4 Default Size

When selected, both the height and the width values will be reset to default settings.

7.7.1.5 Apply

When selected, the user will be prompted to reboot the system to make use of the new screen settings, Figure 7-57. Selecting Yes will proceed with the reboot and NO will cancel the action and return to the Exporter Main screen.

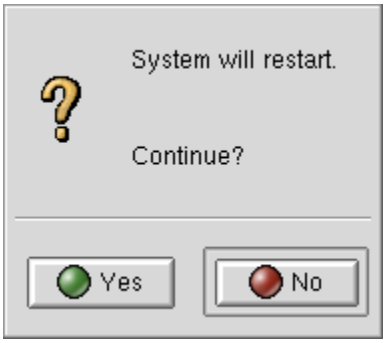


Figure 7-57 Apply Reboot Screen

7.7.1.6 Cancel

When selected, the user will be returned to the Exporter Main screen.

7.7.2 Fonts

This button, if selected, will display a System Fonts screen, Figure 7-58.

Figure 7-58 System Fonts Screen

The upper section if selected allows the user to select the font used on all small data presentation areas, Figure 7-59.

The lower section if selected allows the user to select the font used on all large data presentation areas, Figure 7-59.

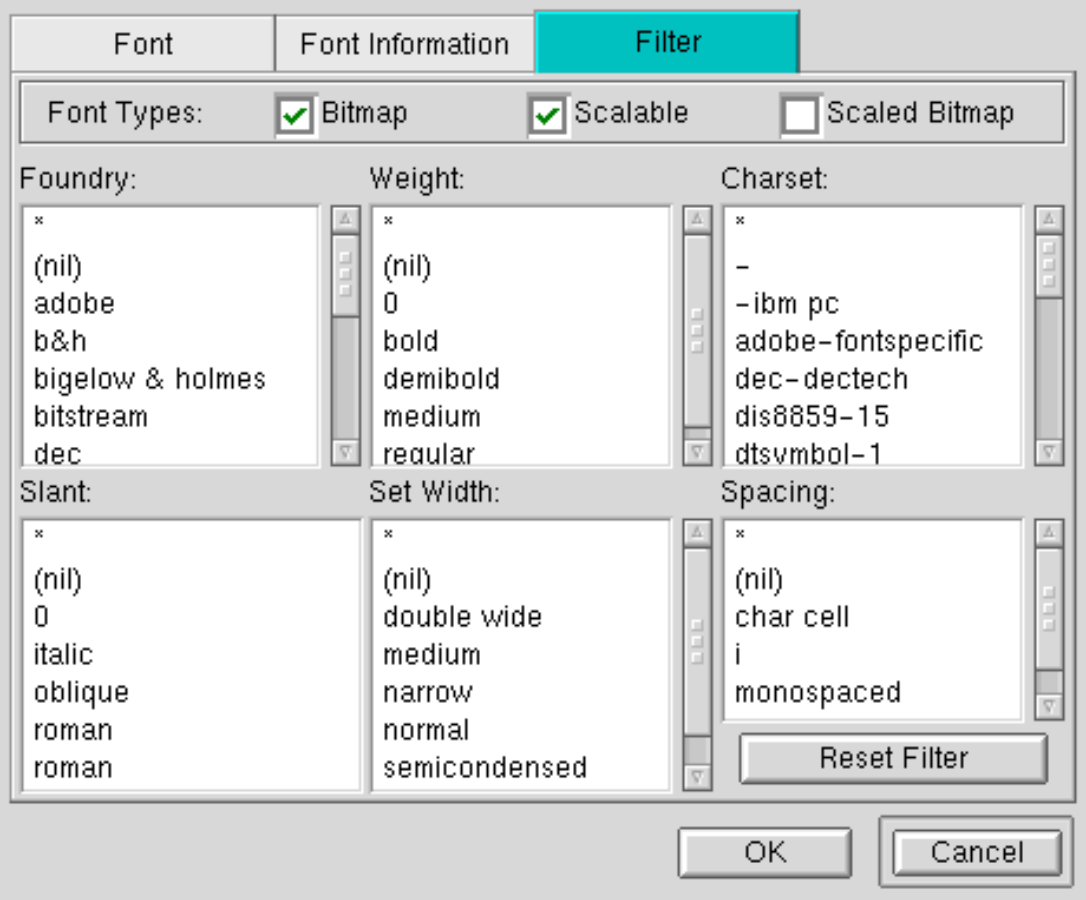


Figure 7-59 Pick a Font Screen

7.7.3 Virtual Chat

The Virtual Chat Screen, Figure 7-60, allows direct communication between two users logged in to the same exciter. If a user is at the exciter and a second user has logged in remotely, see Paragraph 6.6, using Virtual Chat they can communicate directly. By entering the information to be sent in the bottom window and pressing Send, the message will be relayed to the other user. All communications will be displayed in the upper window.

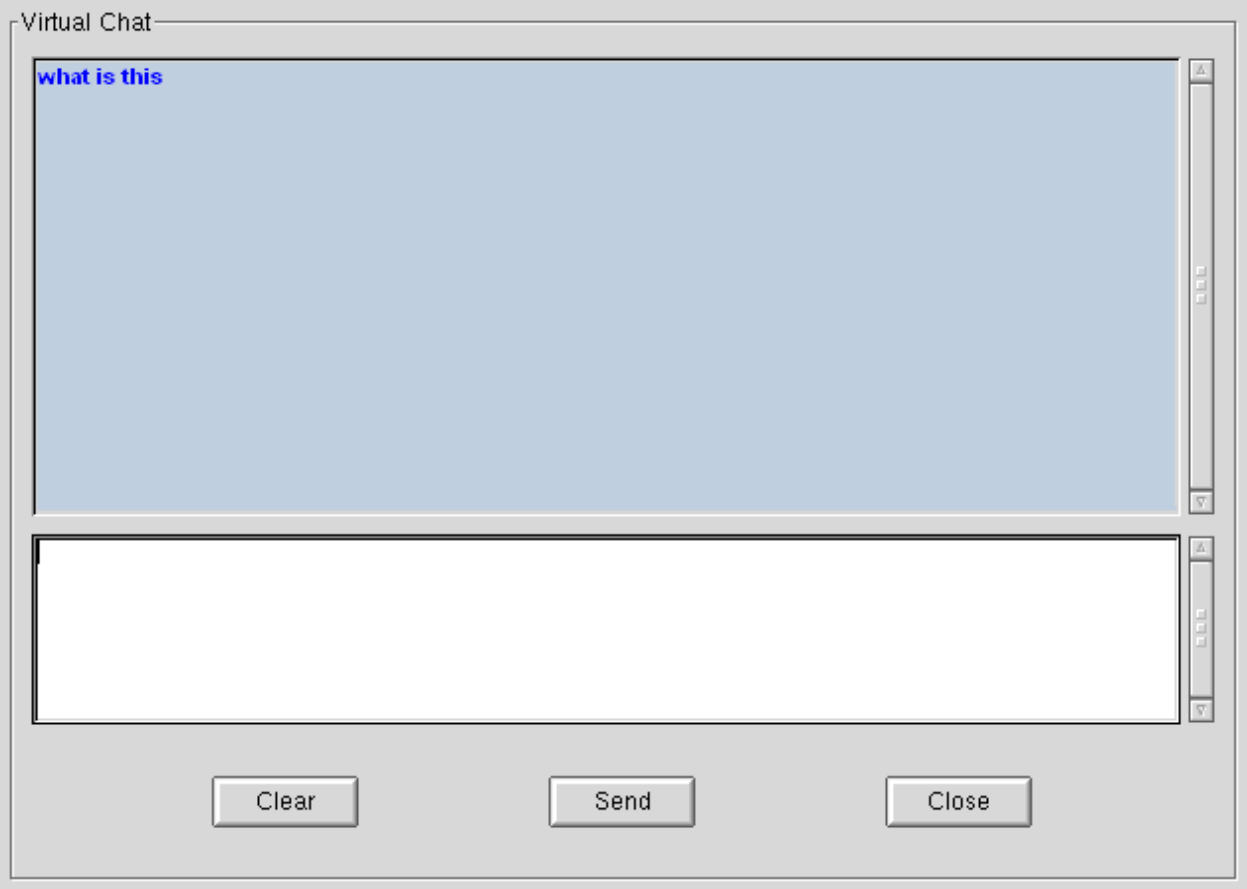


Figure 7-60 Virtual Chat Screen

7.7.4 Activity Monitor

See Paragraph 7.1.

7.7.5 Up Time

When selected, the screen shown in Figure 7-61 displays information about the length of time the exciter has been operational. Two columns are displayed: Calendar Time and Elapsed Time. Calendar Time represents the date and time the last event occurred. The Elapsed Time displays the total time in years, days, minutes, and seconds from the last event.

The events displayed are:

1. OS Start – The last time the OS was restarted.
2. System Start – The last time the application was started.
3. Last System Shut-down – The last time the system was shutdown.
4. Last System Error – The last time a warning or system error occurred.

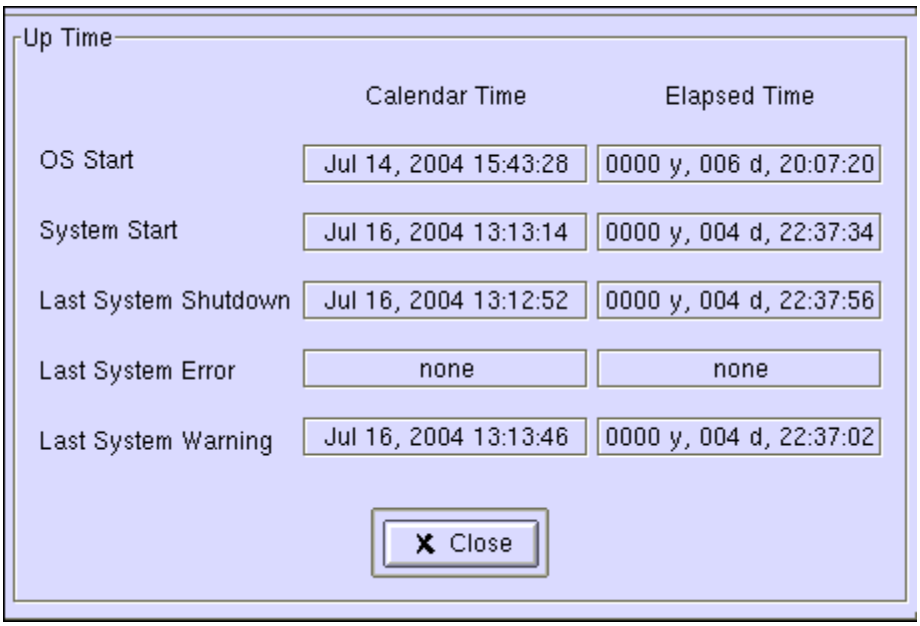


Figure 7-61 Up Time Information Screen.

7.7.6 Restart X Window Server

There may be times when the X Window Server portion of the Linux OS fails and the GUI becomes responsive only during mouse movements. In order to resolve this situation without rebooting the system, use the X Window Server Restart button. This will stop and start the X Window Server portion of the OS without affecting system operation.

8 Maintenance

No preventive maintenance is required. No internal corrective maintenance (repair or replacement) is authorized. If the HD Exporter fails to operate in a normal manner, return unit to Continental Electronics for repair.

9 Parts Lists

9.1 Introduction

This section contains a list of repairable/replaceable electrical and mechanical parts for the HD Exporter.

9.2 Index Of Parts Lists

Table 9-1 is an index of parts lists listed in reference designator order. The parts lists are arranged in ascending numerical order following the top-level parts list, 202200-4. Paragraphs 9.3 through 9.7 describe the five columns in the parts lists.

9.3 Reference Designations (REF DES)

This column contains the reference designators of parts that have been assigned on schematics or wiring diagrams, and/or index numbers for parts which have not been assigned reference designators. When a reference designator within a series of designators has not been assigned a part number, the unassigned reference designator will be omitted from the list.

9.4 Quantity

This column contains the quantity of each component or assembly used in the major subassembly.

9.5 Cage Code

The Commercial and Government Entity (CAGE) code is a five-character alphanumeric code assigned to the manufacturer of the assembly or component.

9.6 Part Number

Continental Electronics specification or drawing control numbers for each item in the parts lists are listed in this column. An asterisk preceding a part number indicates a separate parts list exists for that item. Separate parts lists have been included for all maintenance significant items.

9.7 Description

The identifying noun or item name followed by a brief description such as size, color, rating or special characteristics will be listed in this column. The description for electrical/electronic parts includes the application ratings and tolerances.

9.8 Illustrations

Parts listed in the REF DES column are located on assembly drawings. The assembly drawings are located in Section 10. When a replaceable item is hidden from view, a dotted leader line is used to show the item's location.

Table 9-1 Index of Parts Lists in Ref. Des. Order.

Ref. Des.	Description/Title	Part No.	Rev.
–	HD Exporter	202200-4	–
A1	Motherboard Assembly	202208-1	–
A8	CCA, GPS Clock Distribution	202223-2	A
A10	Rear Panel Assembly	202217-2	–
W12	Cable Assy, GPS Data (W12)	202207-1	–
W22	Cable Assy, GPS Pwr (W22)	202206-1	–
W26	Cable Assy, HD AES Input	202227-1	–
W39	Cable Assy, HD AES	202243-1	–

PL202200-4 HD EXPORTER Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
0	0	52151	202200	HD EXPORTER/SIGNAL GENERATOR
1	0	52151	202200	HD EXPORTER/SIGNAL GENERATOR
2	1	52151	109-9032-210	CHASSIS,RACK MOUNT:4U-19" KB W/TOUCH PAD/LCD MONITOR,24" SLIDES
3	1		*202202-1	CHASSIS,HD EXPORTER/SIGNAL GENERATOR
4	0		202201	SCHEMATIC DIAGRAM,HD EXPORTER/SIGNAL GENERATOR
5	1	52151	202225-1	PLATE,COMPONENT
6	2	52151	191-0034-070	POST,ELEC-MECH EQUIP MALE/FEM 1/4" HEX,6-32 THD EACH END,1-1/2"LG,ALUM
7	0		072-0178-010	SOFTWARE,HD EXPORTER/SIGNAL GENERATOR,PN 202200-1
8	0	52151	NOT-USED	NOT-USED
9	1	52151	015-9942-020	ACCESSORY,LANYARD,TYPE EYE EACH END,8" LG
10	4	52151	191-0017-230	POST,ELECTRICAL-MECHANICAL EQUIPMENT: FEMALE, 1/4 HEX,6-32 UNC X 1-1/2,ALUMINUM,GOLD IRIDITE
11	1	52151	202221-1	OVERLAY,HD EXPORTER
12	22	96906	MS51957-28	SCREW,MACHINE:6-32UNC-2A X 3/8,PAN HEAD,CRES CROSS RECESSED
13	35	96906	MS15795-805	WASHER,FLAT:0.156 ID,0.312 OD,0.035 THK,CRES
14	35	96906	MS35338-136	WASHER,LOCK:#6 NOM ID,SPRING,HELICAL,300 CRES 0.250"OD,0.148"ID,0.031"TK,PASSVTD,REGULAR SERIES
15	11	96906	MS51957-30	SCREW,MACHINE:6-32UNC-2A X 1/2,PAN HEAD,CRES CROSS RECESSED
16	6	96906	MS35649-264	NUT,PLAIN,HEXAGON:6-32UNC-2B,CRES,PASSIVATED
17	0	52151	WL202200-4	INTRA-UNIT WIRING LIST, HD EXPORTER/SIGNAL GENERATOR
18	0	52151	NOT-USED	NOT-USED
19	1		*202211-1	BRACKET,SUPPORT
20	1	52151	202228-1	SUPPORT,CIRCUIT BOARD
21	4	52151	190-5019-010	SPACER,SLEEVE:ROUND,1/4 OD,0.140 ID,1/8 LG, ALUMINUM,GOLD IRIDITE PLATED

PL202200-4 HD EXPORTER Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
22	0	52151	NOT-USED	NOT-USED
23	1	52151	*202220-1	INSTALLATION KIT,HD EXPORTER
24	0	52151	651-9084	TEST SPEC FOR EXPORTER (202200-4) SOFTWARE INSTALLATION AND SYSTEM TEST
A1	1		*202208-1	MOTHERBOARD ASSEMBLY
A2	0	52151	NOT-USED	NOT-USED
A3	1	52151	270-3429-010	GPS TIME/FREQUENCY REFERENCE:12VDC,10MHZ CLOCK
A4	0	52151	NOT-USED	NOT-USED
A5	0	52151	NOT-USED	NOT-USED
A6	1	52151	109-9070-010	CIRCUIT CARD ASSY:DIGITAL AUDIO INTERFACE,24 BIT96KHZ ADAT + WORD CLOCK
A7	1	52151	109-0702-200	DISK DR,CD-ROM,52X,ATAPI/IDE BLACK BEZEL
A8	1	52151	*202223-2	CCA,GPS CLOCK DISTRIBUTION
A9	1	52151	109-0702-190	DISK DR,40GB,3.5",7200RPM,IDE
A10	1		*202217-2	REAR PANEL ASSEMBLY
AT1	1	52151	713-5009-040	DUMMYLOAD,ELECTRICAL,50OHMS 1/4 WATT,SMA CONNECT OR,DC-12GHZ
W1	0	52151	NOT-USED	NOT-USED
W2	0	52151	NOT-USED	NOT-USED
W3	0	52151	REFERENCE	Reference
W4	1	52151	426-7039-070	CABLE ASSY,RG-174,50OHM COAX SMA MALE-BNC MALE,LG:2.5 FT
W5	1	52151	426-7039-040	CABLE ASSY,RG 174,50OHM COAX SMA MALE-BNC MALE,LENGTH:1.5 FT
W6	0	52151	REFERENCE	Reference
W7	1	52151	426-7039-060	CABLE ASSY,RG-174,50OHM COAX SMA MALE-SMA MALE,LG:1.5 FT
W8	1	52151	426-7039-060	CABLE ASSY,RG-174,50OHM COAX SMA MALE-SMA MALE,LG:1.5 FT
W9	1	52151	426-7039-070	CABLE ASSY,RG-174,50OHM COAX SMA MALE-BNC MALE,LG:2.5 FT
W10	0	52151	NOT-USED	NOT-USED
W11	0	52151	NOT-USED	NOT-USED
W12	1		*202207-1	CABLE ASSY,GPS DATA (W12)
W13	1	52151	426-7038-040	CABLE ASSY,SPEC PURPOSE MINI DIN6 MALE TO MINI DIN6 MALE,1 FT
W14	0	52151	REFERENCE	Reference
W15	1	52151	426-7038-040	CABLE ASSY,SPEC PURPOSE MINI DIN6 MALE TO MINI DIN6 MALE,1 FT
W16	0	52151	NOT-USED	NOT-USED
W17	0	52151	REFERENCE	Reference
W18	1	52151	426-7021-130	CBL ASSY,CAT 5E,PATCH CORD,1FT W/RJ45/RJ45 CONNECTORS
W19	0	52151	REFERENCE	Reference
W20	0	52151	NOT-USED	NOT-USED
W21	0	52151	REFERENCE	Reference
W22	1		*202206-1	CABLE ASSY,GPS PWR (W22)
W23	0	52151	REFERENCE	Reference
W24	0	52151	REFERENCE	Reference
W25	0	52151	REFERENCE	Reference

PL202200-4 HD EXPORTER Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
W26	1	52151	*202227-1	CABLE ASSY,HD AES INPUT
W27	0	52151	NOT-USED	NOT-USED
W39	1	52151	*202243-1	CABLE ASSEMBLY

PL202206-1 CABLE ASSY,GPS PWR (W22) Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
2	2	52151	372-9843-010	CONTACT,ELECTRICAL:CRIMP TYPE PIN CONTACT,BRASS24-18AWG WIRE SIZE,13AMP,PRE-TIN
3	0	52151	372-9783-070	CONTACT,ELECTRICAL:FEMALE TERMINAL,CRIMP TYPE18-24AWG,BRASS,GOLD-TIN
4	0.50	52151	439-7067-000	WIRE,ELECTRICAL:22 AWG,600 VOLT,BLACK,PVC
5	0.50	52151	439-7073-000	WIRE,ELECTRICAL:22 AWG,600 VOLT,YELLOW,PVC
P1	0	52151	372-9723-110	CONNECTOR HOUSING,PLUG,ELECTRICAL:3 CAVITY,SINGLE ROW,W/LATCH,FEMALE
P2	1	52151	361-5101-050	CONNECTOR,ELEC,4 CKT MATENLOCK PIN HOUSING,0.200(5.00) CENTERLINE SPACE

PL202207-1 CABLE ASSY,GPS DATA (W12) Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
2	1	52151	426-7019-350	CBL ASSY,SP,ELEC,D-SUB RIBBN SINGLE ENDED,9 PIN,6FT
3	1	52151	139-8075-010	CLAMP,CABLE,ELECTRICAL CONNECTOR:STRAIN RELIEF FOR D SUB RIBBON CONNECTOR,9 CONTACT SIZE,ST STEEL
P2	1	52151	371-7241-030	CONNECTOR,RECPT,ELEC,D-SUB FEMALE,9 PIN,IDC TERMINATION

PL202208-1 MOTHERBOARD ASSEMBLY Rev. -				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
2	1	52151	109-9068-050	CIRCUIT CARD ASSY:MOTHERBOARD,W/FIVE PCI SLOTS SUPPORTS INTEL PENTIUM 4 AND CELERON PROCESSORS
3	1	52151	109-9068-030	MICROCIRCUIT,DIGITAL:PENTIUM 4,3GHZ PROCESSOR
4	1	52151	109-9068-040	HEAT SINK & FAN ASSY:USED W/P4 478 FMB2,12V,0.4A
5	1	52151	351-5513-040	DDR,SDRAM,MEM MOD,512MB,UDIMM 184PIN,2.5V,64MX64,200MHZ

PL202217-2 REAR PANEL ASSEMBLY Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
0	0	52151	202217	REAR PANEL ASSEMBLY
2	1		*202203-1	PANEL,REAR,HD EXPORTER/SIGNAL GENERATOR
3	1		*202204-1	HINGE,HD EXPORTER/SIGNAL GENERATOR
4	11	96906	MS51957-30	SCREW,MACHINE:6-32UNC-2A X 1/2,PAN HEAD,CRES CROSS RECESSED
5	11	96906	MS35649-264	NUT,PLAIN,HEXAGON:6-32UNC-2B,CRES,PASSIVATED
6	11	96906	MS15795-805	WASHER,FLAT:0.156 ID,0.312 OD,0.035 THK,CRES

PL202217-2 REAR PANEL ASSEMBLY Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
7	11	96906	MS35338-136	WASHER,LOCK:#6 NOM ID,SPRING,HELICAL,300 CRES0.250"OD,0.148"ID,0.031"TK,PASSVTD,REGULAR SERIES
8	2	52151	009-5191-020	FAN FINGER GUARD
9	4	96906	MS24693-C4	SCREW,MACHINE:4-40UNC-2A X 3/8,FLAT HEAD,CSK100 DEG CROSS RECESSED,CRES
10	2	96906	MS51957-15	SCREW,MACHINE:4-40UNC-2A X 3/8,PAN HEAD,CRES CROSS RECESSED
11	6	96906	MS15795-803	WASHER,FLAT:0.125 ID,0.250 OD,0.022 THK,CRES
12	6	96906	MS35338-135	WASHER,LOCK:#4 NOM ID,SPRING,HELICAL,300 CRES0.209"OD,0.120"ID,0.025"TK,PASSVTD,REGULAR SERIES
13	6	96906	MS35649-244	NUT,PLAIN,HEXAGON:4-40UNC-2B,CRES,PASSIVATED
14	2	52151	015-9914-010	INSERT,ELECTRICAL CONNECTOR:DOUBLE 'D' PLASTIC0.500" DIA
B1	1		*202213-1	FAN ASSEMBLY
CP1	1	52151	360-5022-110	CON1,COUPLER,FEEDTHRU,RJ45 CAT5E,PANEL MOUNT
CP2	1	52151	371-7242-040	CONNECTOR,CABLE,XLR M,3 PIN FLANGED PANEL MOUNT
CP3	1	52151	371-7242-030	CONNECTOR,CABLE,XLR F,3 PIN FLANGED PANEL MOUNT
CP4	1	52151	124-6000-350	ADAPTER, CONNECTOR: SERIES BNC, TEFLON DIELECTRIC, FEMALE-FEMALE
CP5	0	52151	NOT-USED	NOT-USED
CP6	1	52151	124-6000-350	ADAPTER, CONNECTOR: SERIES BNC, TEFLON DIELECTRIC, FEMALE-FEMALE
CP7	0	52151	NOT-USED	NOT-USED
CP8	0	52151	NOT-USED	NOT-USED
CP9	1	52151	360-5022-110	CON1,COUPLER,FEEDTHRU,RJ45 CAT5E,PANEL MOUNT
CP10	1	52151	360-5022-130	CON1,COUPLER,RJ11,6X4 MODULAR,PANEL MOUNT

PL202223-2 CCA, GPS CLOCK DISTRIBUTION Rev. A				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
1	0	52151	202223	CCA,GPS CLOCK DISTRIBUTION
2	1	52151	202222-1	PRINTED WIRING BOARD,GPS CLOCK DISTRIBIUTION
3	0	52151	202224	SCHEMATIC DIAGRAM, GPS CLOCK DISTRIBUTION
4	0	52151	651-9087	TEST SPEC: FOR 202223-1/2 GPS CLOCK DISTRIBUTION CCA
C1	1	52151	913-7143-595	CAPACITOR,FIXED,CERAMIC:0.1UF,+/-10%,50WVDC,CHIP TYPE,SURF MT,EIA SZ 0805
C2	0	52151	NOT-USED	NOT-USED
C3	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C4	1	52151	184-9624-040	CAPACITOR,FIXED,ELECTROLYTIC:10UF,25VDC CHIP TYPE,SURFACE MT
C5	1	52151	184-9624-040	CAPACITOR,FIXED,ELECTROLYTIC:10UF,25VDC CHIP TYPE,SURFACE MT
C6	1	52151	913-7106-060	CAPACITOR,FIXED,CERAMIC:100000PF,+-10%,50 WVDC CHIP

PL202223-2 CCA, GPS CLOCK DISTRIBUTION Rev. A				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
C7	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C8	1	52151	913-7143-770	CAPACITOR,FIXED,CERAMIC:0.1UF,+-10%,50WVDC,CHIP TYPE,SURF MT,X7R TEMP CHAR,WRPRND TERM,EIA SZ 1206
C10	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C11	1	52151	913-7143-595	CAPACITOR,FIXED,CERAMIC:0.1UF,+/-10%,50WVDC,CHIP TYPE,SURF MT,EIA SZ 0805
C12	0	52151	NOT-USED	NOT-USED
C13	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C14	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C15	1	52151	913-7143-770	CAPACITOR,FIXED,CERAMIC:0.1UF,+-10%,50WVDC,CHIP TYPE,SURF MT,X7R TEMP CHAR,WRPRND TERM,EIA SZ 1206
C16	1	52151	913-7143-380	CAPACITOR,FIXED,CERAMIC:1000PF,+-10%,50WVDC,CHIP TYPE,SURF MT,X7R TEMP CHAR,WRPRND TERM,EIA SZ 0805
C17	0	52151	NOT-USED	NOT-USED
C18	0	52151	NOT-USED	NOT-USED
C19	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C20	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C21	1	52151	913-7143-770	CAPACITOR,FIXED,CERAMIC:0.1UF,+-10%,50WVDC,CHIP TYPE,SURF MT,X7R TEMP CHAR,WRPRND TERM,EIA SZ 1206
C22	0	52151	NOT-USED	NOT-USED
C23	1	52151	913-7143-820	CAPACITOR,FIXED,CERAMIC,.33UF +-10%,25V,SMT 0805
C24	1	52151	913-7143-460	CAPACITOR,FIXED,CERAMIC:4700PF,+-10%,50WVDC,CHIP TYPE,SURF MT,X7R TEMP CHAR,WRPRND TERM,EIA SZ 0805
C25	0	52151	NOT-USED	NOT-USED
C26	0	52151	NOT-USED	NOT-USED
C27	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C28	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C29	1	52151	184-9624-040	CAPACITOR,FIXED,ELECTROLYTIC:10UF,25VDC CHIP TYPE,SURFACE MT

PL202223-2 CCA, GPS CLOCK DISTRIBUTION Rev. A				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
C30	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C31	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C32	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C33	1	52151	913-7143-650	CAPACITOR,FIXED,CERAMIC:0.01 UF,+-10%,50 WVDC,CHIP TYPE,X7R TEMP CHAR,WRPRND TERM,SURF MT,EIA SZ 1206
C34	0	52151	184-9616-160	CAPACITOR,FIXED,TANTALUM 220UF,+/-10%,6V,CHIP TYPE,SMT,LOW ESR
D1	1	52151	353-5354-010	SEMICONDUCTOR DEVICE,DIODE:SILICON,HOT CARRIER,30V PRV,SCHOTTKY BARRIERTYPE,SURFACE MT,3 PIN SOT PKG
DS1	1	52151	262-5037-060	LIGHT,INDICATOR:GREEN LED,30MA,75MW,2.1 VOLTS
DS2	1	52151	262-5037-060	LIGHT,INDICATOR:GREEN LED,30MA,75MW,2.1 VOLTS
J1	1	52151	372-9604-250	CONNECTOR;PIN HEADER,3 PIN,ELECTRICAL,PC MOUNT SNGL ROW,0.100"CENTERS,0.025"SQ PIN,GOLD FINISH
J2	1	52151	372-9604-250	CONNECTOR;PIN HEADER,3 PIN,ELECTRICAL,PC MOUNT SNGL ROW,0.100"CENTERS,0.025"SQ PIN,GOLD FINISH
J3	0	52151	NOT-USED	NOT-USED
J4	0	52151	NOT-USED	NOT-USED
J5	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
J6	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
J7	1	52151	372-9641-020	CONNECTOR,RECEPTACLE,ELECTRICAL:3 CIRCUITS2.5 AMPERES
J8	0	52151	NOT-USED	NOT-USED
J9	0	52151	NOT-USED	NOT-USED
J10	1	52151	372-9641-020	CONNECTOR,RECEPTACLE,ELECTRICAL:3 CIRCUITS2.5 AMPERES
J11	0	52151	NOT-USED	NOT-USED
J12	0	52151	NOT-USED	NOT-USED
J13	0	52151	NOT-USED	NOT-USED
J14	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
J15	0	52151	NOT-USED	NOT-USED
J16	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
J17	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
J18	1	52151	363-2004-020	CONNECTOR,BODY,PLUG,ELECTRICAL:4 PIN DISK DRIVE POWER,PWB MOUNT,STRAIGHT,NYLON
J19	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
J20	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
J21	0	52151	NOT-USED	NOT-USED
J22	1	52151	372-9677-030	CONN,RECT,SMA PCB MOUNT JACK
K1	0	52151	NOT-USED	NOT-USED
L1	1	52151	288-4062-010	BEAD,FERRITE,200MA,0.5 OHM@DC 600 OHM @ 100 MHZ,0603,SMT PKG
L2	0	52151	NOT-USED	NOT-USED
P1	1	52151	372-9604-150	CONNECTOR,JUMPER:2-CIRCUIT

PL202223-2 CCA, GPS CLOCK DISTRIBUTION Rev. A				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
P2	1	52151	372-9604-150	CONNECTOR,JUMPER:2-CIRCUIT
P3	0	52151	NOT-USED	NOT-USED
P4	0	52151	NOT-USED	NOT-USED
Q1	1	52151	352-5104-030	TRANSISTOR:SILICON,PNP,200MADC,40V C-E,350MW, 250MHZ PLASTIC SOT-23 SURFACE MT PKG
Q2	1	52151	352-5104-030	TRANSISTOR:SILICON,PNP,200MADC,40V C-E,350MW, 250MHZ PLASTIC SOT-23 SURFACE MT PKG
Q3	1	52151	352-5204-010	TRANSISTOR:TMOS,FET,DRAIN-SOURCE=60VDC, 280MADC SOT-23 SURFACE MT PKG
R1	0	52151	NOT-USED	NOT-USED
R2	1	52151	724-5057-000	RESISTOR,FIXED,FILM:0 OHM,+-1%,1/4 WATT @70 DEG C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R3	1	52151	724-5057-000	RESISTOR,FIXED,FILM:0 OHM,+-1%,1/4 WATT @70 DEG C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R4	1	52151	724-5057-050	RESISTOR,FIXED,FILM:110 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R5	0	52151	NOT-USED	NOT-USED
R6	1	52151	724-5057-155	RESISTOR,FIXED,FILM:1000 OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R7	1	52151	724-5057-155	RESISTOR,FIXED,FILM:1000 OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R8	1	52151	724-5057-155	RESISTOR,FIXED,FILM:1000 OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R9	1	52151	724-5057-155	RESISTOR,FIXED,FILM:1000 OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R10	1	52151	724-5057-365	RESISTOR,FIXED,FILM:47.5K OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R11	1	52151	724-5057-050	RESISTOR,FIXED,FILM:110 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R12	0	52151	NOT-USED	NOT-USED
R13	0	52151	NOT-USED	NOT-USED
R14	1	52151	724-5057-680	RESISTOR,FIXED,FILM:40.2 OHM,+-1%,1/4 WATT @ 70 C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R15	1	52151	724-5077-328	RESISTOR,FIXED,FILM:499 OHM,+/-0.1%,0.25WATT@70C THICK FILM CHIP TYPE,TC=25PPM
R16	1	52151	724-5077-290	RESISTOR,FIXED,FILM:316 OHM,+/-0.1%,.25W @70C THICK FILM CHIP TYPE,TC=25PPM
R17	1	52151	724-5057-680	RESISTOR,FIXED,FILM:40.2 OHM,+-1%,1/4 WATT @ 70 C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R18	1	52151	724-5057-002	RESISTOR,FIXED,FILM:12.1 OHM,+/-1%,1/4 WATT @70C DEG C
R19	1	52151	724-5030-120	RESISTOR,FIXED,1/8W,5%, 1.6KOHM,SMT 0805 PKG
R20	1	52151	724-5057-365	RESISTOR,FIXED,FILM:47.5K OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R21	0	52151	NOT-USED	NOT-USED
R22	0	52151	NOT-USED	NOT-USED
R23	1	52151	724-5057-155	RESISTOR,FIXED,FILM:1000 OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R24	1	52151	724-5057-286	RESISTOR,FIXED,FILM:12.4K OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R25	1	52151	724-5057-365	RESISTOR,FIXED,FILM:47.5K OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM

PL202223-2 CCA, GPS CLOCK DISTRIBUTION Rev. A				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
R26	0	52151	NOT-USED	NOT-USED
R27	1	52151	724-5057-275	RESISTOR,FIXED,FILM:10K OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R28	1	52151	724-5057-565	RESISTOR,FIXED,FILM:49.9 OHM,+/-1%,1/4 WATT @70C THICK FILM CHIP TYPE,TC=100 PPM
R29	1	52151	724-5057-010	RESISTOR,FIXED,FILM:51.1 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R30	1	52151	724-5057-010	RESISTOR,FIXED,FILM:51.1 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R31	1	52151	724-5057-010	RESISTOR,FIXED,FILM:51.1 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R32	1	52151	724-5057-010	RESISTOR,FIXED,FILM:51.1 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R33	0	52151	NOT-USED	NOT-USED
R34	1	52151	724-5057-175	RESISTOR,FIXED,FILM:1500 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R35	1	52151	724-5057-175	RESISTOR,FIXED,FILM:1500 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R36	1	52151	724-5057-175	RESISTOR,FIXED,FILM:1500 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R37	1	52151	724-5057-175	RESISTOR,FIXED,FILM:1500 OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
R38	1	52151	724-5057-540	RESISTOR,FIXED,FILM:1M OHM,+-1%,1/4 WATT @ 70C 1/32W @ 125C,THICK FILM CHIP TYPE,TC=100PPM/DEG C
T1	1	52151	667-4020-010	TRANSFORMER,DIGITAL/AUDIO INTERFACE,225MH,1:1 TURNS RATIO, 8-PIN SMT
T2	1	52151	667-4020-010	TRANSFORMER,DIGITAL/AUDIO INTERFACE,225MH,1:1 TURNS RATIO,8-PIN SMT
T3	0	52151	NOT-USED	NOT-USED
T4	0	52151	NOT-USED	NOT-USED
TP1	1	52151	372-9828-010	CONNECTOR,ELECTRICAL,TEST POINT:RED,PWB LOOP
TP2	1	52151	372-9828-010	CONNECTOR,ELECTRICAL,TEST POINT:RED,PWB LOOP
U1	1	52151	351-5050-030	MICROCIRCUIT,DIGITAL:CLOCK DRIVER,MINIMUM SKEW 1 INPUT TO 4 OUTPUTS,300PS SKEW,3V VCC,8-PIN SOIC
U2	1	52151	* 202229-1	MICROCIRCUIT,DIGITAL: PROGRAMMED
U3	1	52151	351-5487-010	MICROCIRCUIT,DIGITAL:PROCESSORSUPERVISORY CIRCUIT 5-PIN,SOP PKG,SURFACE MT
U4	1	52151	351-5079-060	MICROCIRCUIT,DIGITAL,2-BIT DUAL-SUPPLY BUS TRANSCEIVER,8-PIN SSOP SMT,1.65V TO 5.5V SUPPLY RANGE
U5	1	52151	351-5398-100	MICROCIRCUIT,DIGITAL,CMOS DIGITAL AUDIO SAMPLE RATE CONVERTER SMT,20-PIN,PLASTIC SOIC PKG
U6	0	52151	NOT-USED	NOT-USED
U7	1	52151	* 202229-2	MICROCIRCUIT,DIGITAL: PROGRAMMED
U8	1	52151	351-5079-060	MICROCIRCUIT,DIGITAL,2-BIT DUAL-SUPPLY BUS TRANSCEIVER,8-PIN SSOP SMT,1.65V TO 5.5V SUPPLY RANGE
U9	1	52151	351-5487-045	MICROCIRCUIT,PROCESSOR SUPERVISORY,ACTIVE LOW RESET,3.3V OPN 200MS TIME DELAY

PL202223-2 CCA, GPS CLOCK DISTRIBUTION Rev. A				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
U10	1	52151	351-1122-020	MICROCIRCUIT,LINEAR:QUAD COMPARATOR,LOW OFFSET LOW POWER,SURFACE MT,14 PIN PLASTIC SO14 DIP PKG
U11	1	52151	351-5248-040	MICROCIRCUIT,DIGITAL,DUAL 4-BIT BINARY COUNTER,SMT,SO14 PKG
U12	1	52151	351-5492-020	MICROCIRCUIT,AMPLIFIER,FAST VOLTAGE-OUT DC 440MHZ,95DB LOGARITHMIC 8-PIN MSOP PKG
U13	1	52151	351-5050-030	MICROCIRCUIT,DIGITAL:CLOCK DRIVER,MINIMUM SKEW 1 INPUT TO 4 OUTPUTS,300PS SKEW,3V VCC,8-PIN SOIC
VR1	1	52151	351-5227-030	MICROCIRCUIT, LINEAR:VOLTAGE REGULATOR,+3.3V,1.5A LOW DROPOUT,LOW NOISE,5PIN
Z1	1	52151	379-5042-010	DIVIDER,POWER,RADIO FREQUENCY:2 WAY 5-500MHZ,50 OHM,1 WATT,0 DEG,SURFACE MOUNT
Z2	1	52151	379-5042-010	DIVIDER,POWER,RADIO FREQUENCY:2 WAY 5-500MHZ,50 OHM,1 WATT,0 DEG,SURFACE MOUNT

PL202227-1 CABLE ASSY,HD AES INPUT Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
2	2	52151	424-3040-020	CABLE,SPECIAL PURPOSE,ELECTRICAL:DIGITAL AUDIO CABLE,2 CONDUCTOR,24AWG,COPPER,PVC JACKET
3	3	52151	372-9783-060	CONTACT,ELECTRICAL:FEMALE TERMINAL,CRIMP TYPE22-30AWG,BRASS,GOLD-TIN
P1	1	52151	371-7242-030	CONNECTOR,CABLE,XLR F,3 PIN FLANGED PANEL MOUNT
P2	1	52151	372-9723-140	CONNECTOR HOUSING,RECEPTACLE,ELECTRICAL:3 CAVITY1 ROW,W/LATCH,FEMALE

PL202243-1 CABLE ASSEMBLY Rev. –				
Ref. Des.	**Qty**	**Cage**	**Part No.**	**Description**
2	3	52151	372-9783-060	CONTACT,ELECTRICAL:FEMALE TERMINAL,CRIMP TYPE22-30AWG,BRASS,GOLD-TIN
3	3	52151	152-8034-010	SPLICE,CONDUCTOR:SHIELD TERMINATION,SOLDER TYPE HT-SHRNK INSUL,0.030"/0.060" CABLE JACKET OD
4	1	52151	424-3040-020	CABLE,SPECIAL PURPOSE,ELECTRICAL:DIGITAL AUDIO CABLE,2 CONDUCTOR,24AWG,COPPER,PVC JACKET
P1	0	52151	REFERENCE	Reference
P2	0	52151	REFERENCE	Reference
P3	1	52151	372-9723-140	CONNECTOR HOUSING,RECEPTACLE,ELECTRICAL:3 CAVITY 1 ROW,W/LATCH,FEMALE

10 Drawings

An index of assembly and schematic diagrams is provided in Table 10-1. The drawings are arranged in ascending numerical order at the back of the manual.

Table 10-1 Index of Drawings in Numerical Order.

Drawing Number	Rev	Reference Designator	DrawingTitle
202200	G	–	HD Exporter/Signal Generator
202201	D	–	HD Exporter/Signal Generator Schematic
202206	A	W22	Cable Assy, GPS Pwr (W22)
202207	–	W12	Cable Assy, GPS Data (W12)
202208	–	A1	Motherboard Assembly
202217	C	A10	Rear Panel Assembly
202223	–	A8	CCA, GPS Clock Distribution
202224	A	A8	GPS Clock Distribution Schematic
202227	–	W26	Cable Assy
202243	–	W39	Cable Assy, HD AES

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

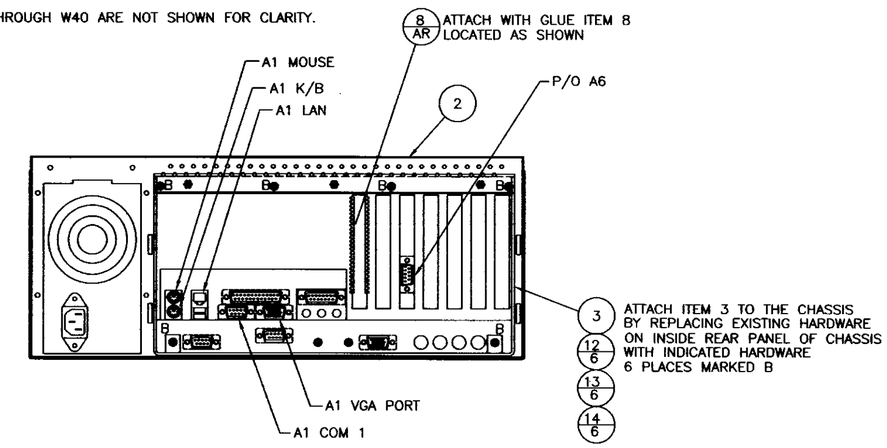
6	5	4	3	2	1	SHEET
E	G	G	D	F	G	REV

SHEET INDEX

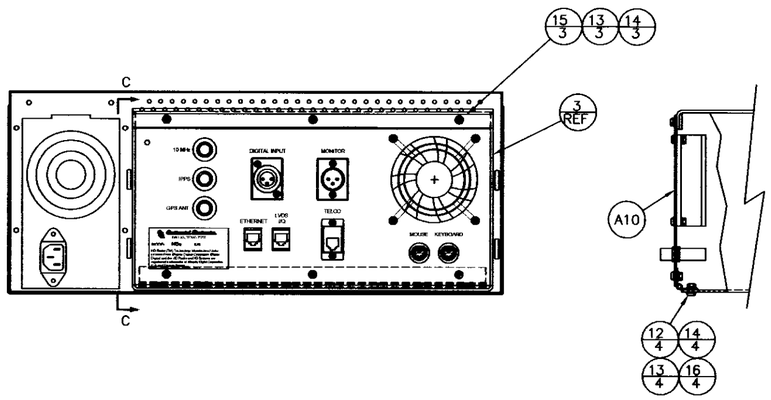
REVISIONS				
REV	DESCRIPTION	DATE	APPROVED
–	PRODUCTION RELEASE		
A	REVISED PER ECN 06-0105N	06/03/24	TZ
B	REVISED PER ECN 06-0110N	06/04/04	MW
C	REVISED PER ECN 06-0158N	06/06/05	CJA
D	REVISED PER ECN 06-0224N	06/08/15	CJA
E	REVISED PER ECN 06-0271N	06/09/29	CJA
F	REVISED PER ECN 06-0268N	06/10/09	
G	REVISED PER ECN 06-0299N	06/11/15	TZ

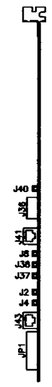
NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.
2. W1 THROUGH W40 ARE NOT SHOWN FOR CLARITY.

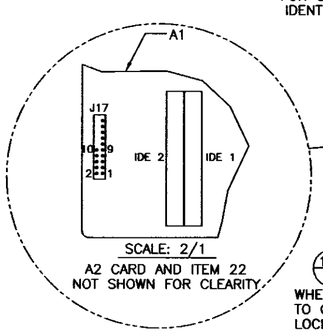


REAR VIEW BEFORE REAR PANEL ATTACHED



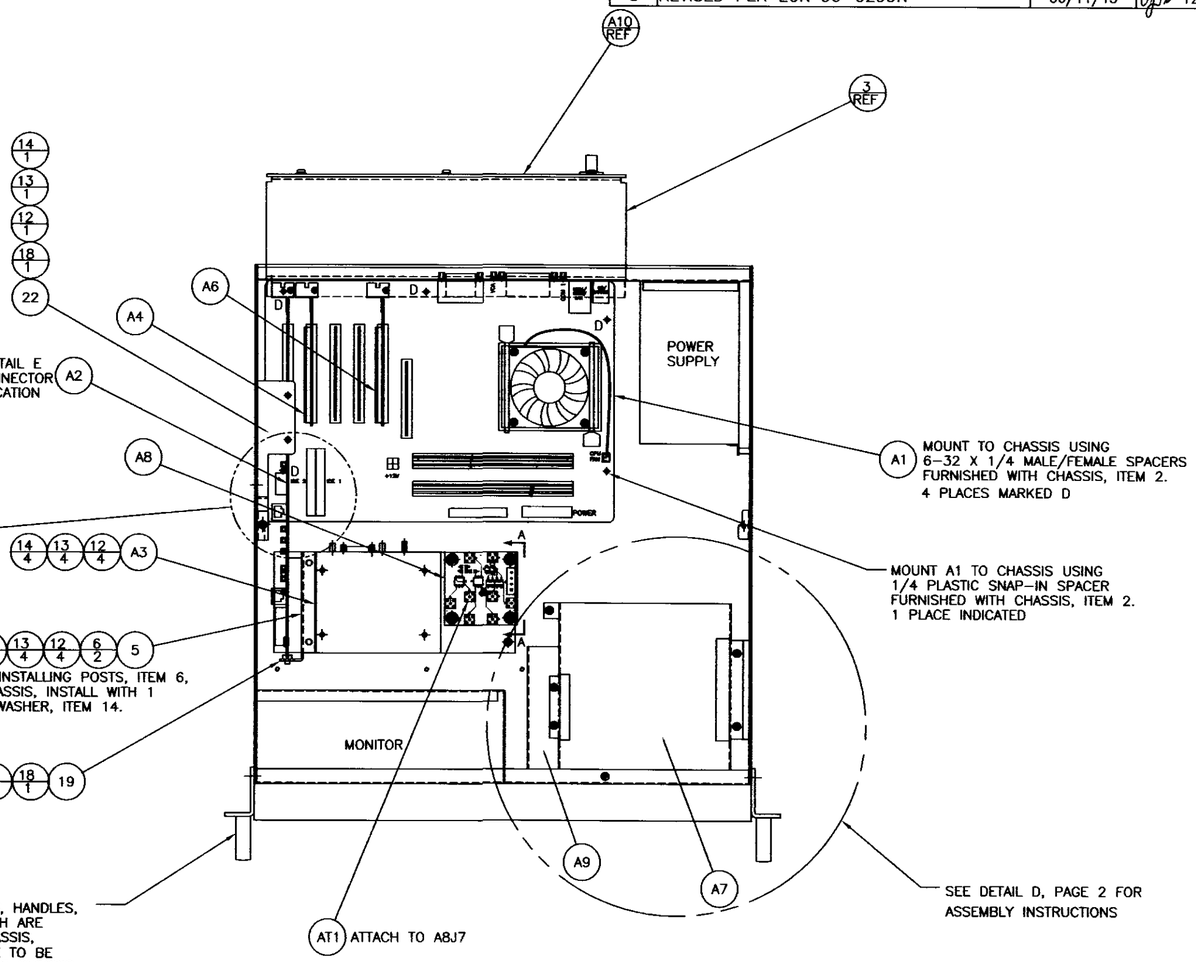


DETAIL E

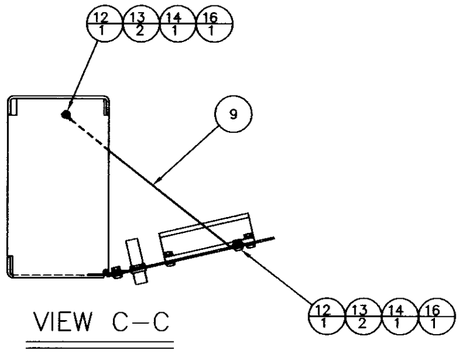


SCALE: 2/1

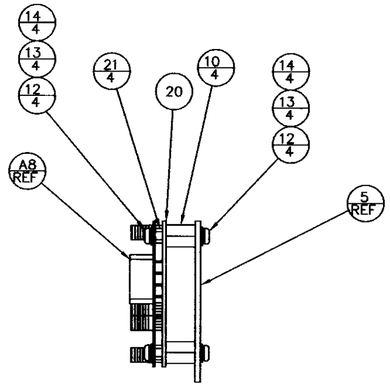
A2 CARD AND ITEM 22 NOT SHOWN FOR CLEARITY.



REAR VIEW AFTER REAR PANEL ATTACHED

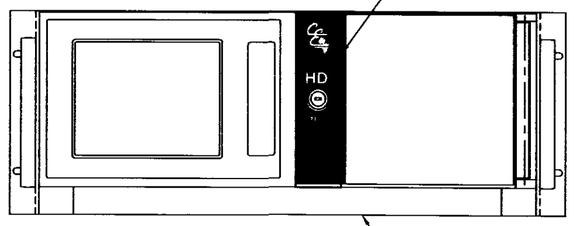


VIEW C–C



VIEW A–A

SCALE: 2/1



SEE SEPARATE PARTS LIST

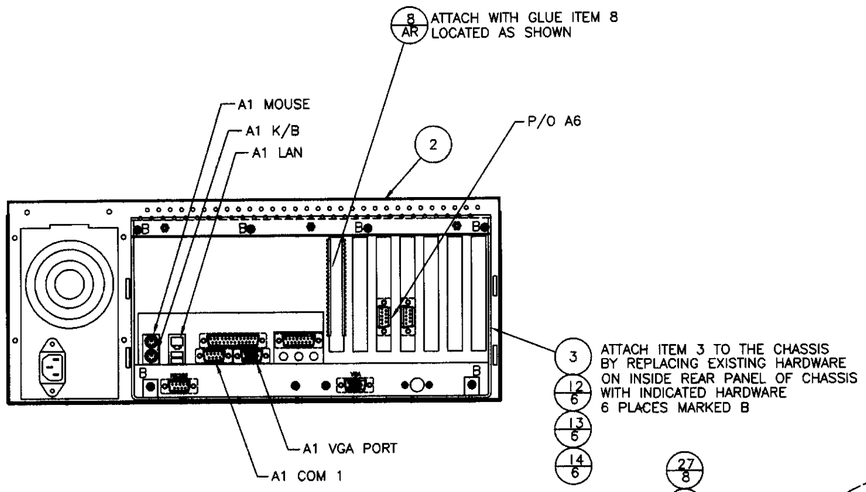
202200-5	HD EXPORTER/ SIGNAL GENERATOR
202200-4	HD EXPORTER/ SIGNAL GENERATOR
202200-3	HD EXPORTER/ SIGNAL GENERATOR
202200-2	HD EXPORTER/ SIGNAL GENERATOR
202200-1	HD EXPORTER/ SIGNAL GENERATOR

PART NUMBER — NOMENCLATURE OR DESCRIPTION

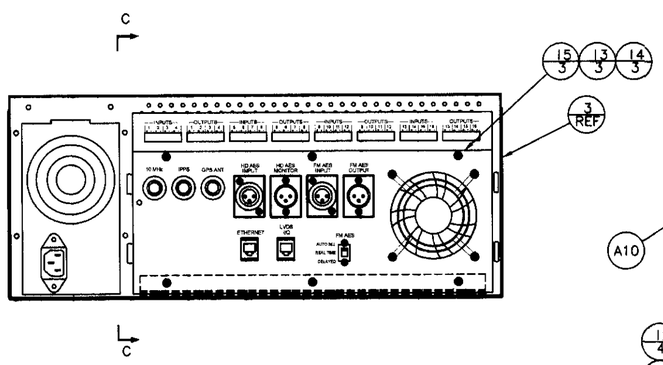
202200-1

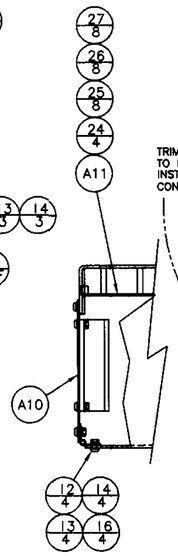
UNLESS OTHERWISE SPECIFIED	DRAWN C ABBEY	DATE YY/MM/DD 05/12/09	CONTINENTAL ELECTRONICS 4212 S BUCKNER DALLAS, TEXAS 75227 214-381-7161
TOLERANCES 2 PL DEC ±.03 3 PL DEC ±.015 ANGLES ±1°	CHECKED		
	MECH ENGR C ABBEY	06/02/22	HD EXPORTER/ SIGNAL GENERATOR
MACHINED SURFACE FINISH 125	ELEC ENGR B WOLVERTON	06/02/22	
	PROJ ENGR D BROWN	06/02/22	
ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.	APPROVED		SIZE E CAGE 52151 DWG NO 202200
REMOVE ALL BURRS AND SHARP EDGES.	NEXT ASSEMBLY 9114 FO NUMBER		SCALE 1/2 SHEET 1 OF 6

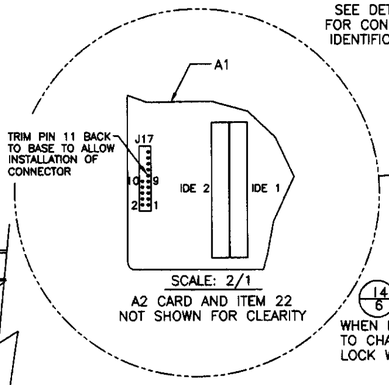
PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

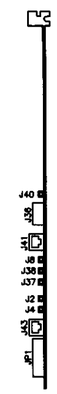


REAR VIEW BEFORE REAR PANEL ATTACHED

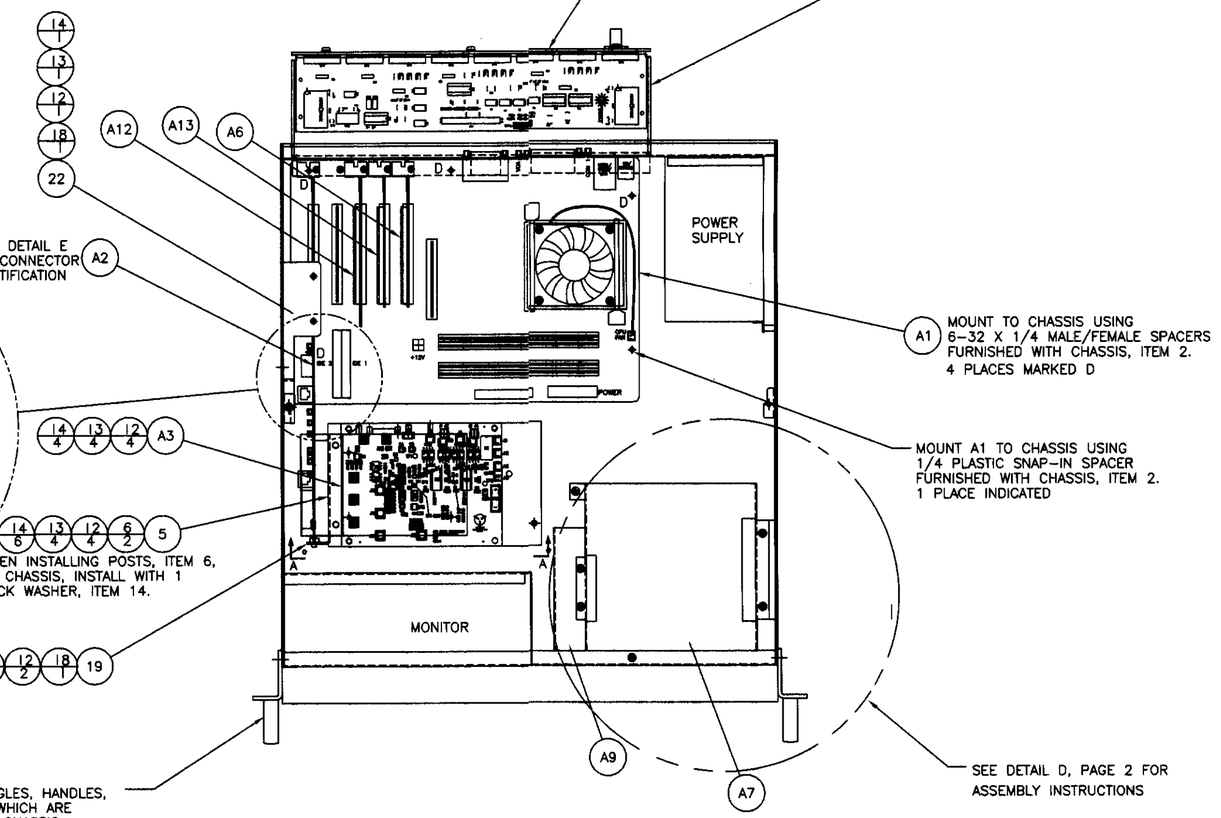




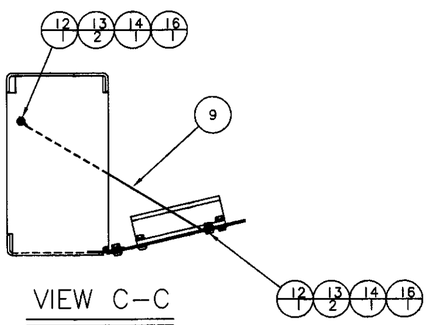




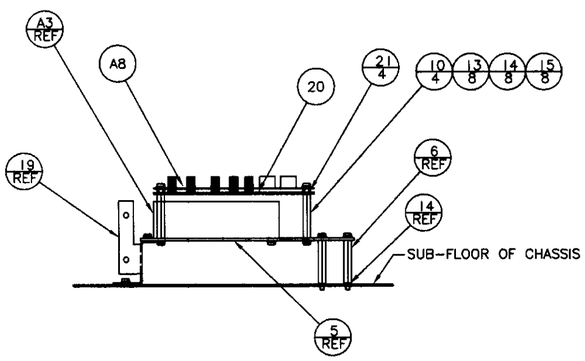
DETAIL E



REAR VIEW AFTER REAR PANEL ATTACHED

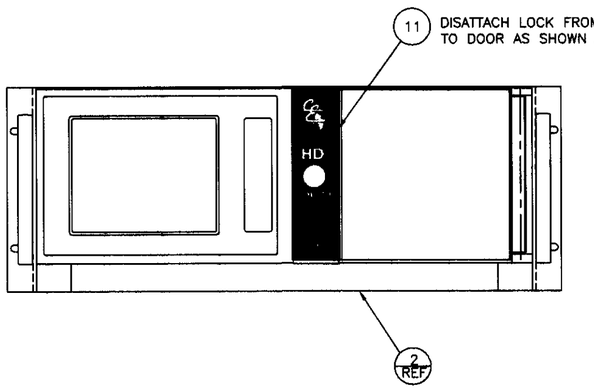


VIEW C-C



VIEW A-A

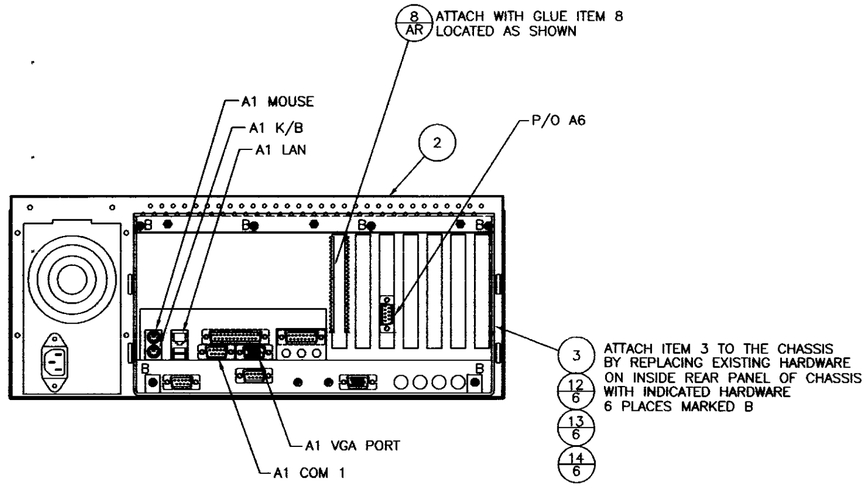
SCALE: 2/1



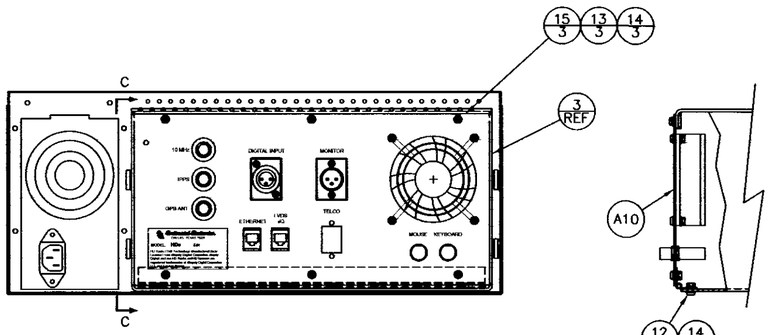
202200-2

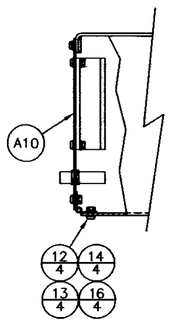
SIZE	CAGE	DWG NO	REV
E	52151	202200	F
SCALE 1/2			SHEET 2

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.



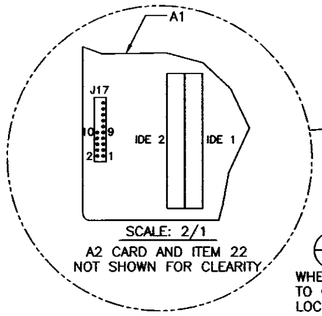
REAR VIEW BEFORE REAR PANEL ATTACHED





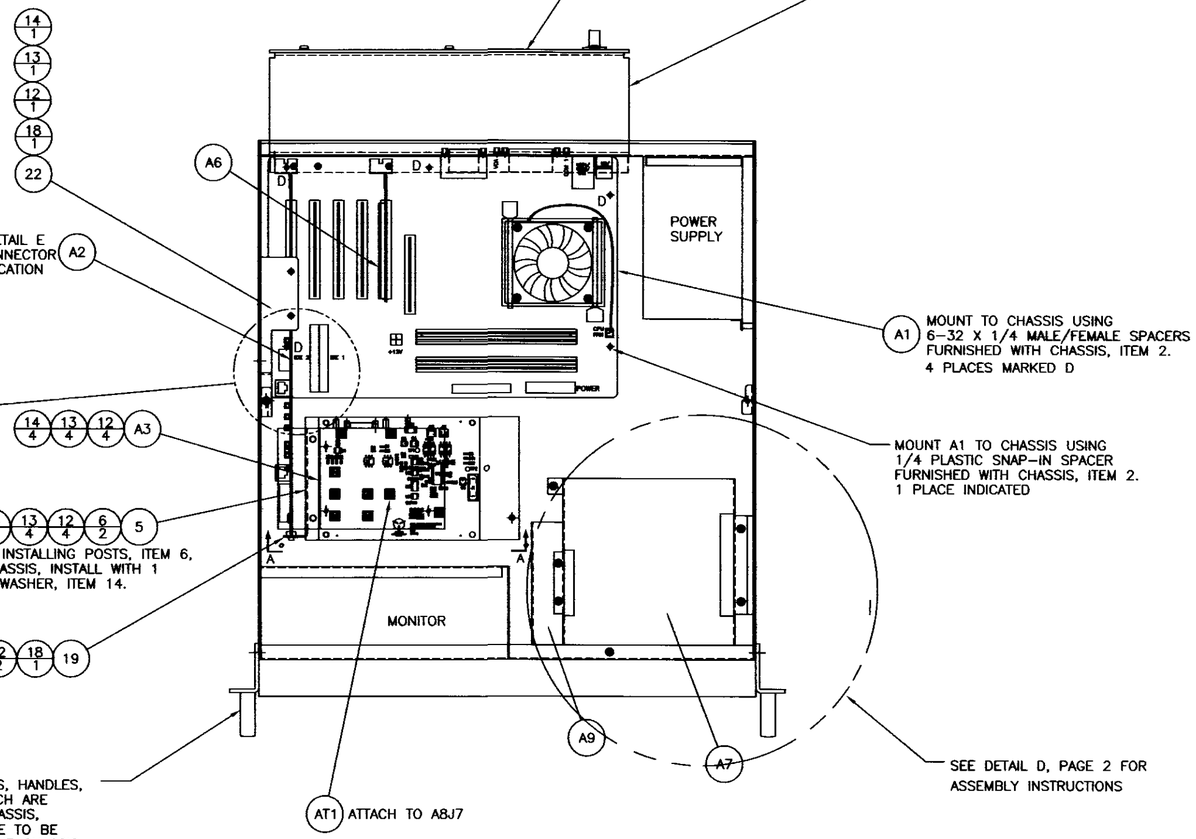
REAR VIEW AFTER REAR PANEL ATTACHED

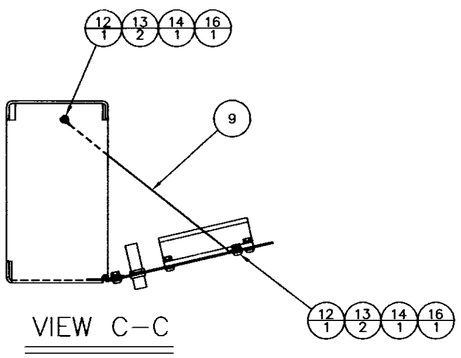
DETAIL E



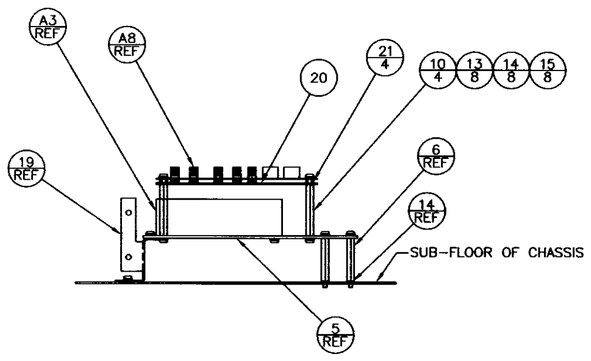
SCALE: 2/1

A2 CARD AND ITEM 22 NOT SHOWN FOR CLEARITY.



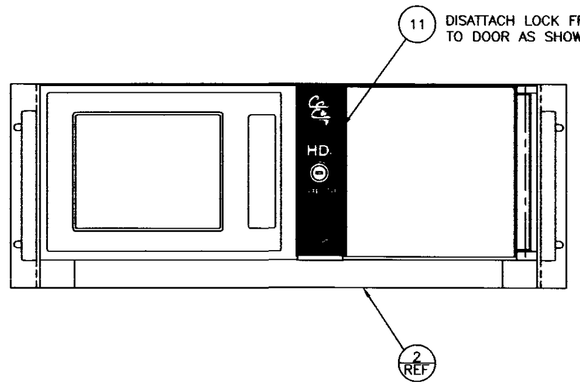


VIEW C-C



VIEW A-A

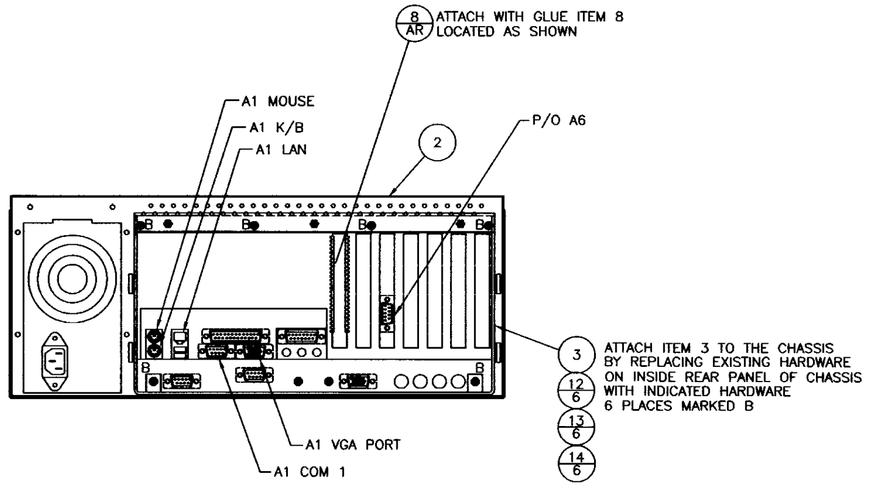
SCALE: 2/1



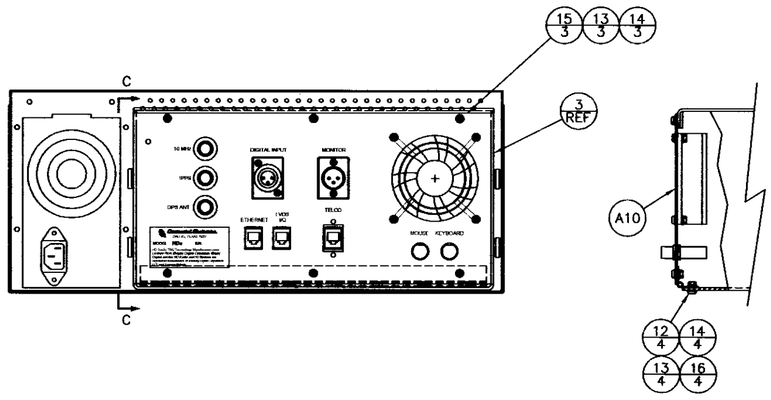
202200-3

SIZE	CAGE	DWG NO	REV
E	52151	202200	D
SCALE 1/2		SHEET 3	

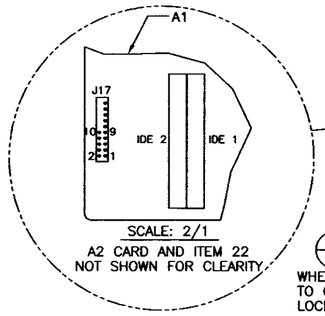
PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

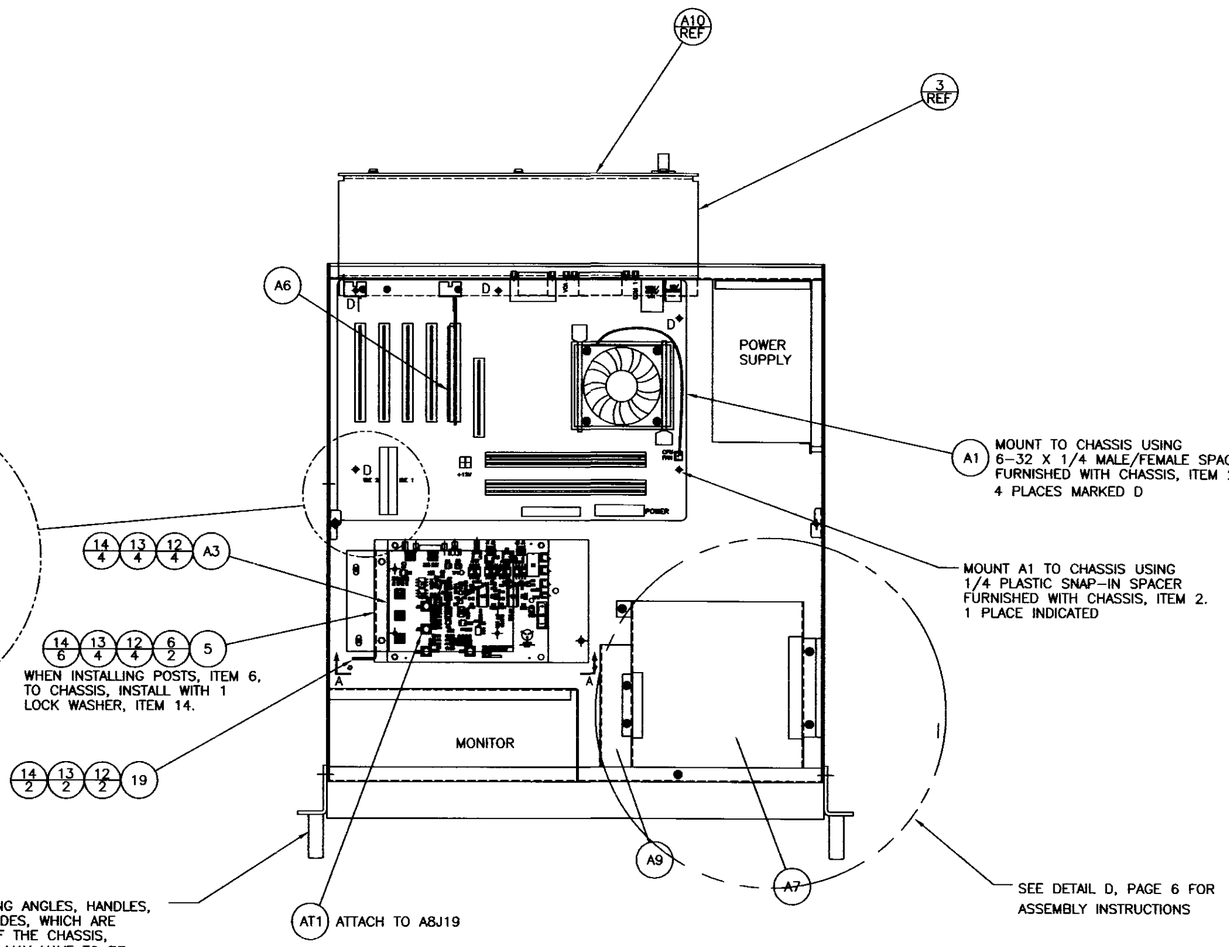


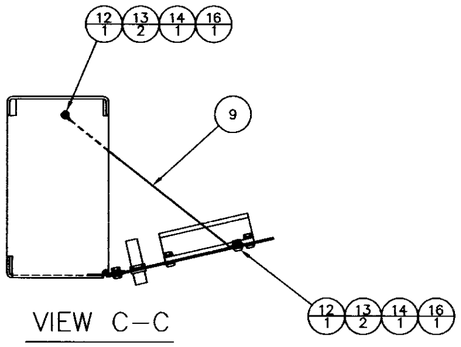
REAR VIEW BEFORE REAR PANEL ATTACHED



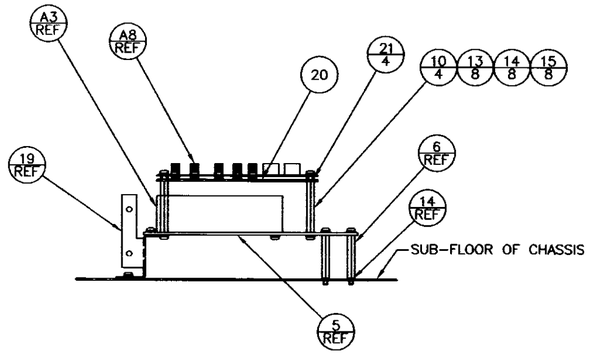
REAR VIEW AFTER REAR PANEL ATTACHED



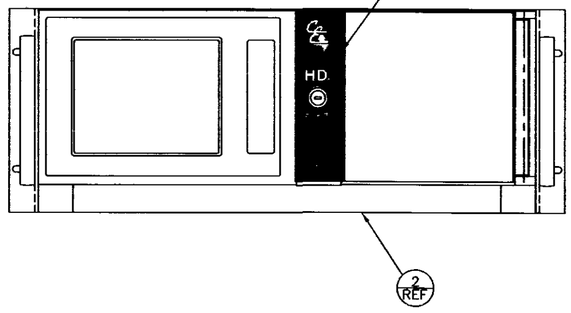




VIEW C–C



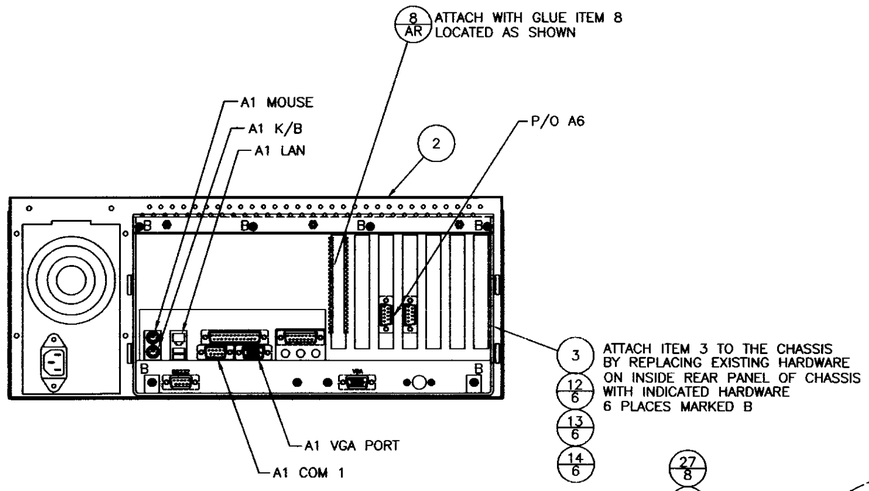
VIEW A–A
SCALE: 2/1



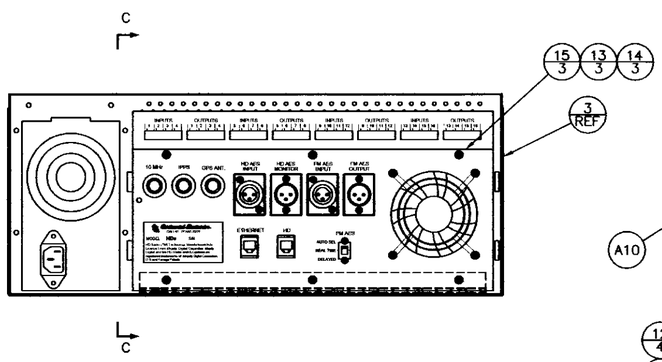
202200–4

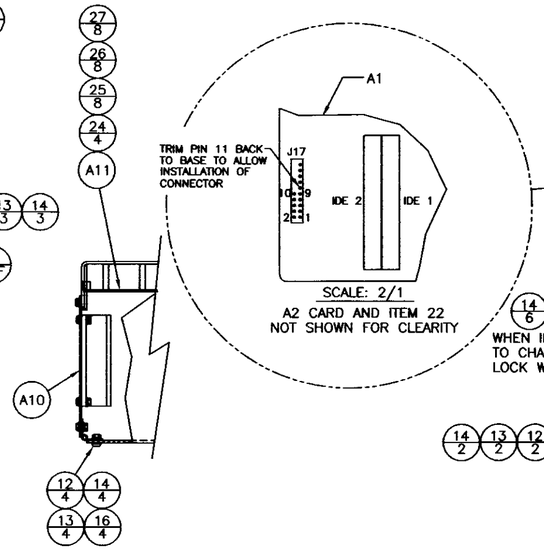
SIZE	CAGE	DWG NO	REV
E	52151	202200	G
SCALE 1/2			SHEET 4

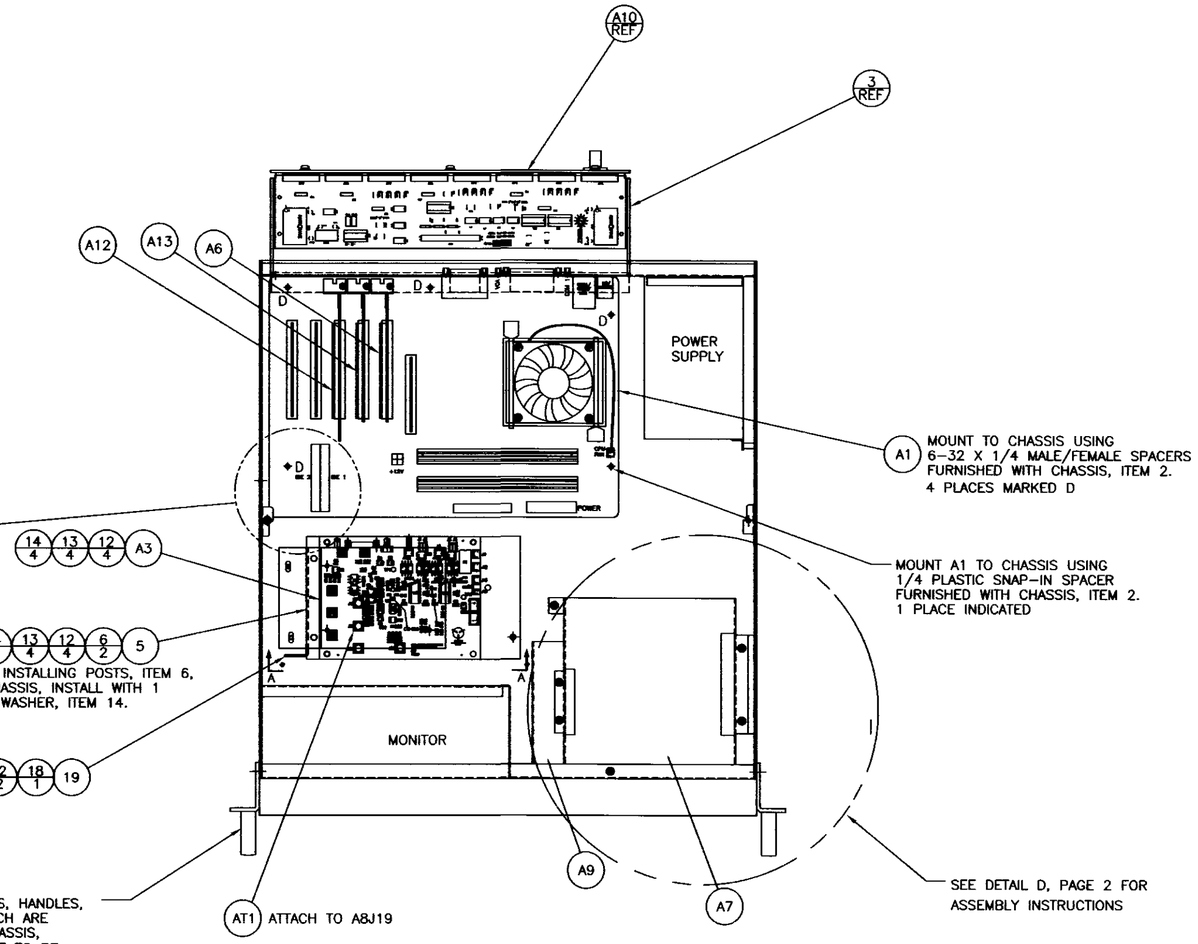
PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.



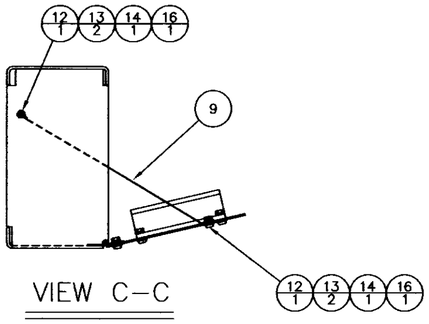
REAR VIEW BEFORE REAR PANEL ATTACHED



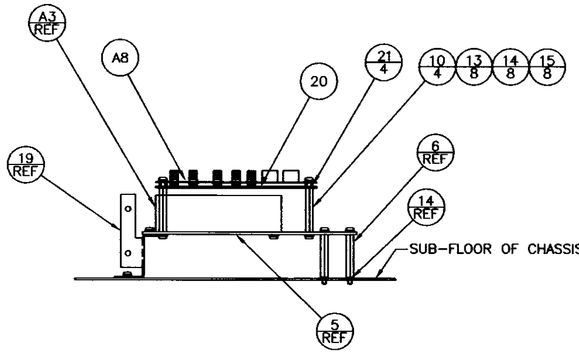




REAR VIEW AFTER REAR PANEL ATTACHED

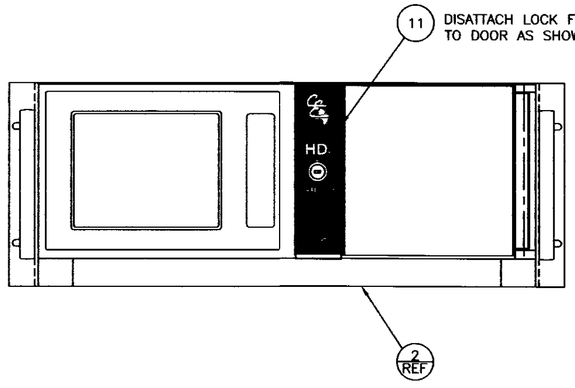


VIEW C–C



VIEW A–A

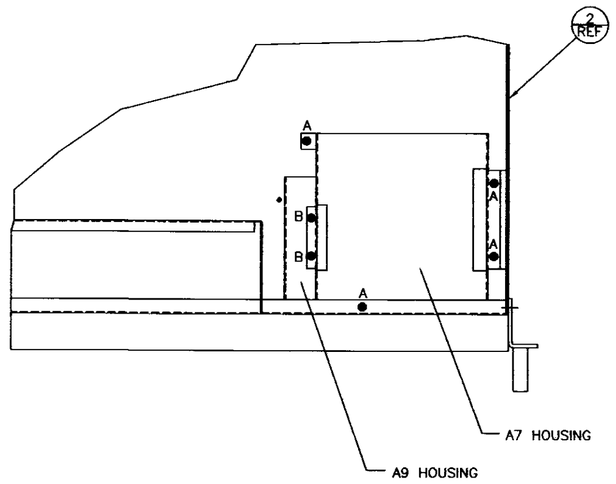
SCALE: 2/1



202200-5

SIZE	CAGE	DWG NO	REV
E	52151	202200	G
SCALE 1/2		SHEET 5	

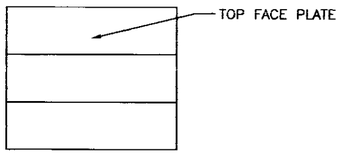
PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.



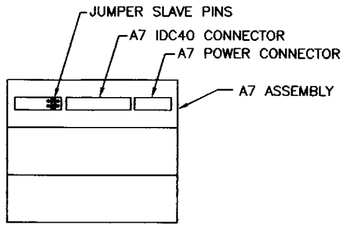
DETAIL D

STEPS TO INSTALL A7 AND A9

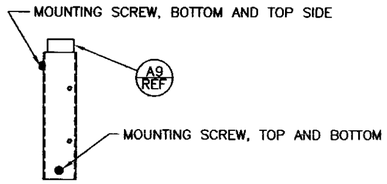
1. REMOVE 4 SCREWS MARKED A, IN DETAIL D, AND RETAIN. REMOVE A7 AND A9 HOUSING FROM THE CHASSIS, ITEM 2.
2. SEPARATE A7 AND A9 HOUSINGS BY REMOVING 2 SCREWS MARKED B, IN DETAIL D.
3. REMOVE AND DISCARD TOP FACE PLATE. (SEE FRONT VIEW OF A7 HOUSING)
4. INSTALL CD-ROM DRIVE, A7, INTO TOP SLOT OF A7 HOUSING.
5. ON REAR OF A7, INSTALL JUMPER ACROSS SLAVE PINS.
6. ATTACH A9 TO THE A9 HOUSING USING FURNISHED HARDWARE. 4 PLACES INDICATED IN TOP VIEW OF A9 HOUSING.
7. ATTACH JUMPER BETWEEN PINS 7 AND 8 AS INDICATED IN REAR VIEW OF A9.
8. REATTACH A9 HOUSING TO A7 HOUSING AND THEN REINSTALL ASSEMBLY BACK INTO THE CHASSIS, ITEM 2.



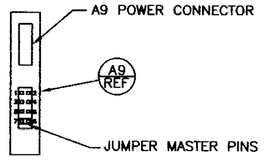
FRONT VIEW OF A7 HOUSING



REAR VIEW OF A7 HOUSING



TOP VIEW OF A9 HOUSING



REAR VIEW OF A9 HOUSING

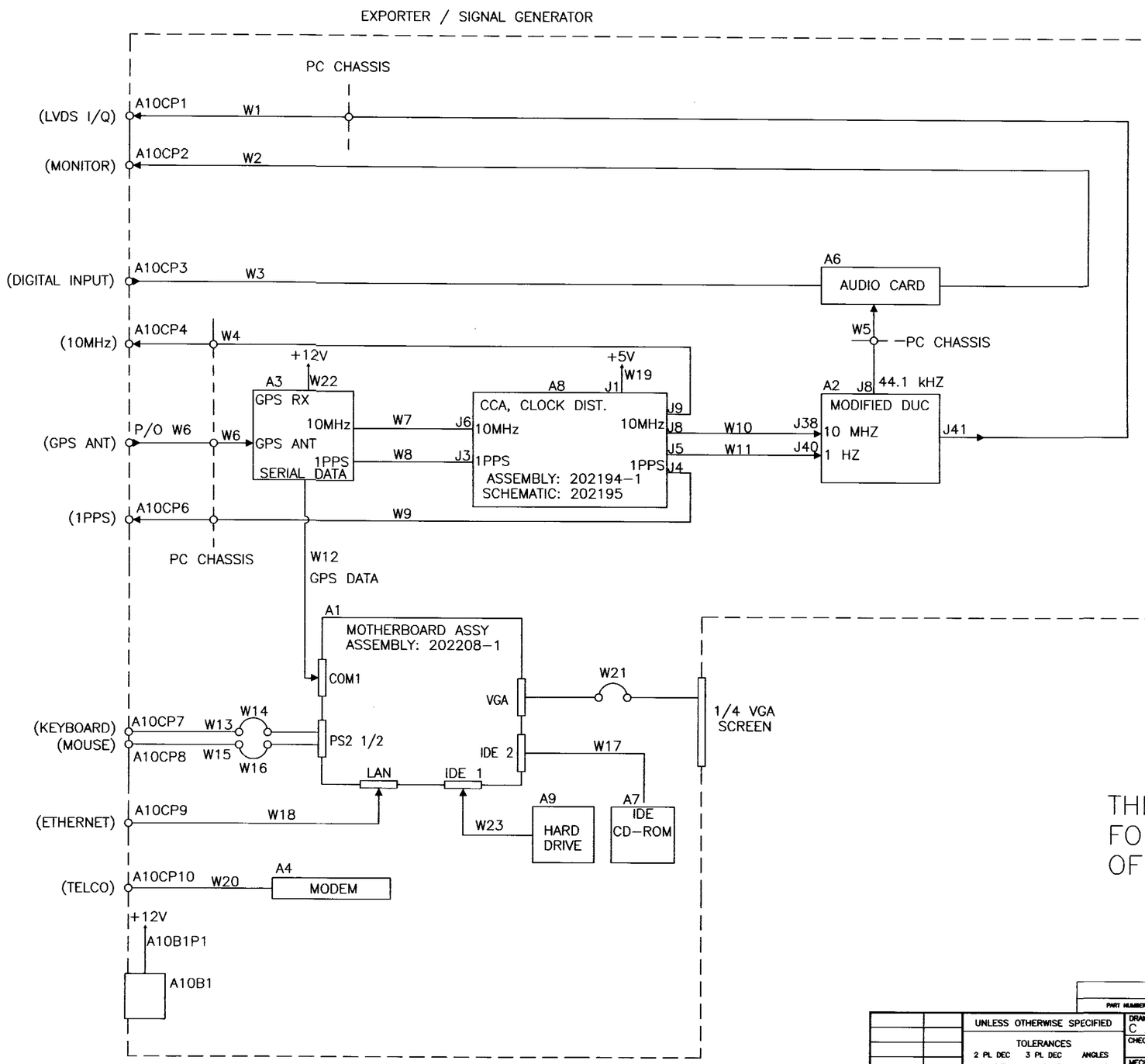
SIZE	CAGE	DWG NO	REV
E	52151	202200	E
SCALE 1/2			SHEET 6

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

DWG NO. 202201 SH 1

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
–	PRODUCTION RELEASE	06/02/21	CJA/BW
A	REVISED PER ECN 06-0158N	06/06/05	CJA
B	REVISED PER ECN 06-0224N	06/08/15	CJA
C	REVISED PER ECN 06-0271N		
D	REVISED PER ECN 06-0299N	06/11/15	TZ



THIS SCHEMATIC IS FOR 202200-1 VERSION OF HD GENERATOR

PART NUMBER	NOMENCLATURE OR DESCRIPTION

UNLESS OTHERWISE SPECIFIED

TOLERANCES
2 PL DEC ±.03 | 3 PL DEC ±.015 | ANGLES ±1°

MACHINED SURFACE FINISH 125

ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.

REMOVE ALL BURRS AND SHARP EDGES.

NEXT ASSEMBLY	FO NUMBER
202200	9114

	DRAWN	DATE: YY/MM/DD
	C ABBEY	06/01/26
	CHECKED	
	MECH ENGR	
	ELEC ENGR B WOLVERTON	06/02/22
	PROJ ENGR	
	APPROVED	

CONTINENTAL ELECTRONICS
4212 S BUCKNER
DALLAS, TEXAS 75227 214-381-7161

SCHEMATIC, HD EXPORTER/SIGNAL GENERATOR

SIZE	CAGE	DWG NO
D	52151	202201

SCALE N/A SHEET 1 OF 5

CEC FORM 387-1 REV C

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

EXPORTER / SIGNAL GENERATOR

(HD AES MONITOR) A10CP2

(HD AES INPUT) W26P1 W26 J7 J1 R/C

(FM AES INPUT) W28P1 W28 J8 J3 R/C

(HD) A10CP1 W1 A2 MODIFIED DUC J41 J38 10 MHZ 1PPS J40 W10 W11 J19 10MHz OUT J17 1PPS OUT

(10MHz) A10CP4 W4 J16 10MHz OUT

(FM AES OUTPUT) W34P1 W34 J9

+5V W19 J18

A8 CCA, CLOCK DIST. ASSEMBLY: 202223-1 SCHEMATIC: 202224

J10 W39A A13 (HD) AUDIO CARD W39B

(REAL TIME) J11 W40A W39C A6 (FM) AUDIO CARD CP2

(DELAYED) J12 J22 44.1KHz W30 CP1 W40C W40B

J15 W38 A11 PHOENIX CCA 13-(OUTPUT) JP5 13+(OUTPUT) W32 A12 STATION INTERFACE J135 J133 JP1 J2 ATX W36

K1 +5V J13 W35 BLK RED GRN

AUTO SEL
REAL TIME
DELAYED

+12V A3 W22 GPS RX 10MHz 1PPS SERIAL DATA

(GPS ANT) W6P1 W6 GPS ANT W7 J6 10MHz IN W8 J5 1PPS IN J14 1PPS OUT

(1PPS) A10CP6 W9 W12 GPS DATA

A1 MOTHERBOARD ASSY ASSEMBLY: 202208-1 J17 COM 2 COM1 VGA IDE 2 LAN IDE 1

W37 W33 W21 W17

CHASSIS KEYBOARD & MOUSE W14 W13 W15 MOUSE K/B

1/4 VGA SCREEN

(ETHERNET) A10CP9 W18 W23 A9 HARD DRIVE A7 IDE CD-ROM

+12V A10B1P1 REAR FAN A10B1

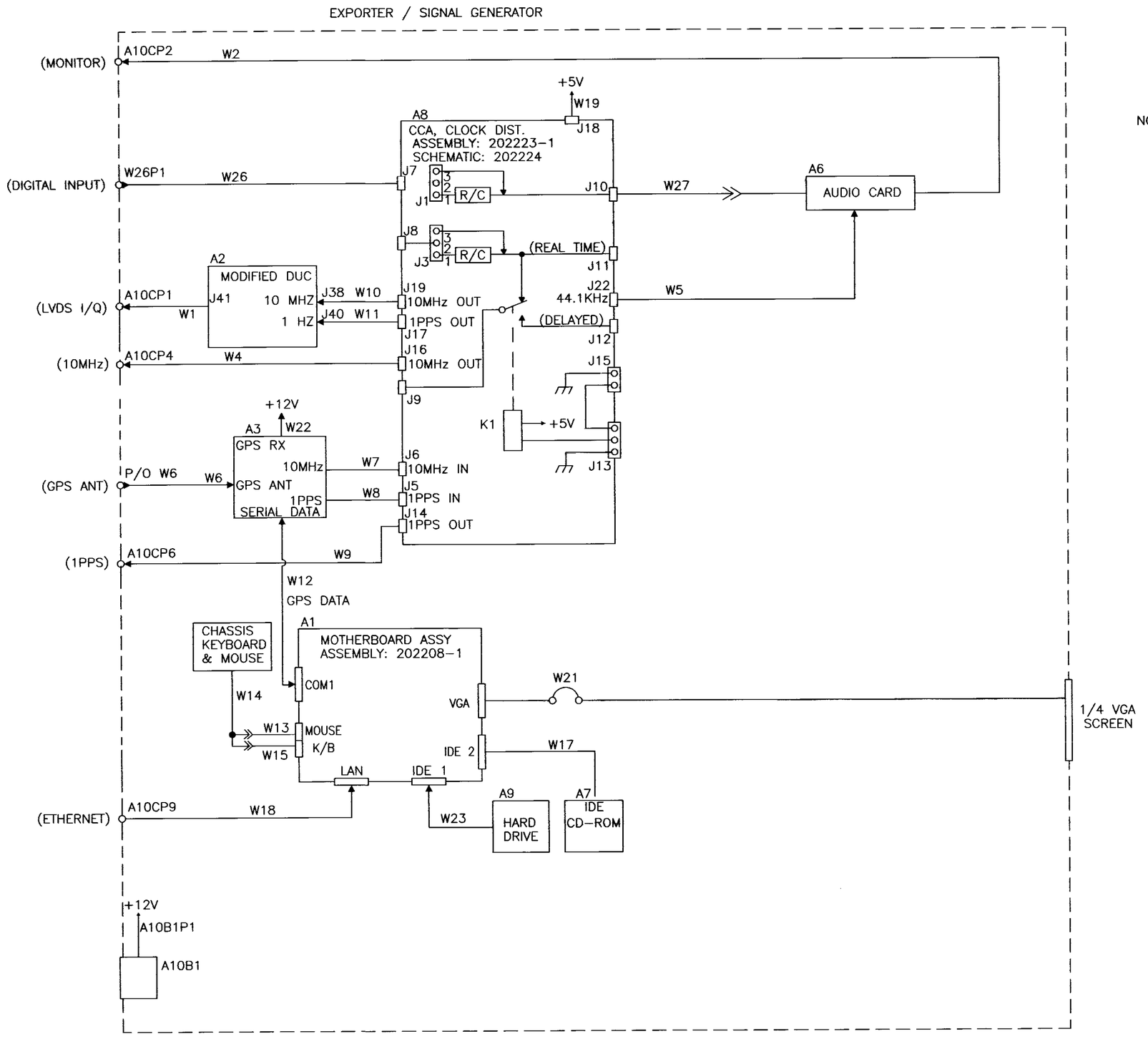
NOTES:

1. A8J1 SHOWN IN DIAGRAM REPRESENTS A8J1 & A8J2, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J1P2 AND A8J2P1 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J1P2 & A8J2P1 SHOULD BE ACROSS PINS 2 & 3.
2. A8J3 SHOWN IN DIAGRAM REPRESENTS A8J3 & A8J4, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J3P4 AND A8J4P3 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J3P4 & A8J4P3 SHOULD BE ACROSS PINS 2 & 3.

THIS SCHEMATIC IS FOR 202200-2 VERSION OF HD GENERATOR

SIZE	CAGE	DWG NO	REV
D	52151	202201	D
SCALE N/A			SHEET 2

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.



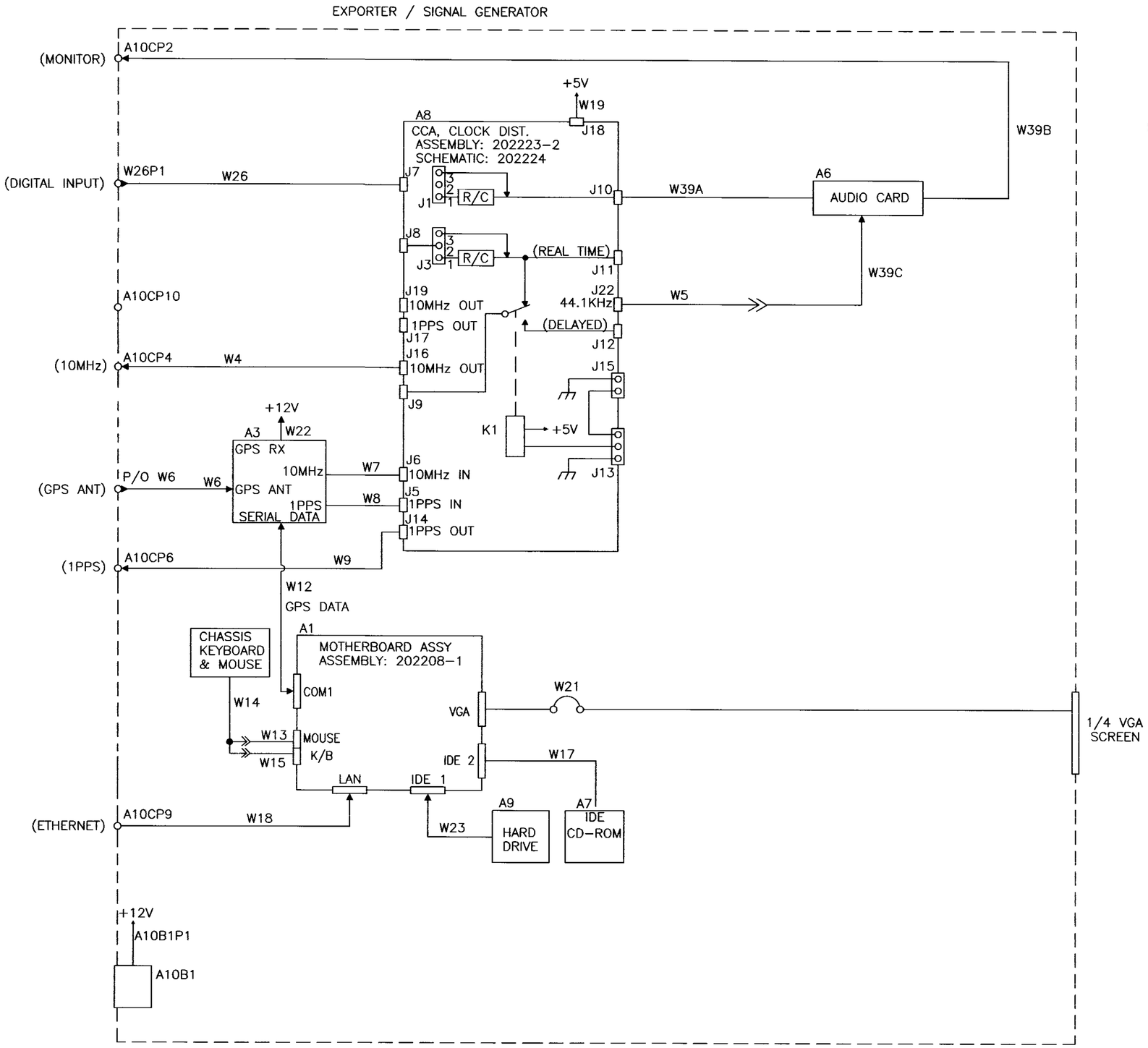
NOTES:

1. A8J1 SHOWN IN DIAGRAM REPRESENTS A8J1 & A8J2, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J1P2 AND A8J2P1 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J1P2 & A8J2P1 SHOULD BE ACROSS PINS 2 & 3.
2. A8J3 SHOWN IN DIAGRAM REPRESENTS A8J3 & A8J4, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J3P4 AND A8J4P3 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J3P4 & A8J4P3 SHOULD BE ACROSS PINS 2 & 3.

THIS SCHEMATIC IS
FOR 202200-3 VERSION
OF HD GENERATOR

SIZE	CAGE	DWG NO	REV
D	52151	202201	B
SCALE N/A			SHEET 3

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.



NOTES:

1. A8J1 SHOWN IN DIAGRAM REPRESENTS A8J1 & A8J2, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J1P2 AND A8J2P1 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J1P2 & A8J2P1 SHOULD BE ACROSS PINS 2 & 3.
2. A8J3 SHOWN IN DIAGRAM REPRESENTS A8J3 & A8J4, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J3P4 AND A8J4P3 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J3P4 & A8J4P3 SHOULD BE ACROSS PINS 2 & 3.

THIS SCHEMATIC IS
FOR 202200-4 VERSION
OF HD GENERATOR

SIZE	CAGE	DWG NO	REV
D	52151	202201	D
SCALE N/A			SHEET 4

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

EXPORTER / SIGNAL GENERATOR

(HD AES MONITOR) A10CP2 W39B

+5V W19 J18

A8 CCA, CLOCK DIST. ASSEMBLY: 202223-1 SCHEMATIC: 202224

(HD AES INPUT) W26P1 W26 J7 J1 R/C J10 W39A A13 (HD) AUDIO CARD

W39C

(FM AES INPUT) W28P1 W28 J8 J3 R/C (REAL TIME) J11 W40A A6 (FM) AUDIO CARD

CP2

(HD) A10CP1 J19 10MHz OUT J22 44.1KHz W30 W40C W40B

1PPS OUT J17 (DELAYED) J12

CP1

(10MHz) A10CP4 W4 J16 10MHz OUT J15 W38

(FM AES OUTPUT) W34P1 W34 J9

A11 PHOENIX CCA 13-(OUTPUT) JP5 13+(OUTPUT) W32 A12 STATION INTERFACE J135 J133 JP1 J2 ATX W36

+12V A3 W22 K1 +5V W35 BLK

GPS RX 10MHz W7 J6 10MHz IN J13

(GPS ANT) W6P1 W6 GPS ANT W8 J5 1PPS IN RED AUTO SEL REAL TIME DELAYED

1PPS SERIAL DATA J14 1PPS OUT GRN

(1PPS) A10CP6 W9

W12 GPS DATA

A1 MOTHERBOARD ASSY ASSEMBLY: 202208-1 J17 W37

CHASSIS KEYBOARD & MOUSE COM 2 W33

COM1 W21

W14 VGA 1/4 VGA SCREEN

W13 MOUSE K/B IDE 2 W17

W15 LAN IDE 1

(ETHERNET) A10CP9 W18 W23 A9 HARD DRIVE A7 IDE CD-ROM

+12V A10B1P1

REAR FAN A10B1

NOTES:

1. A8J1 SHOWN IN DIAGRAM REPRESENTS A8J1 & A8J2, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J1P2 AND A8J2P1 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J1P2 & A8J2P1 SHOULD BE ACROSS PINS 2 & 3.
2. A8J3 SHOWN IN DIAGRAM REPRESENTS A8J3 & A8J4, LEFT AND RIGHT CHANNELS. FOR RATE CONVERSION, A8J3P4 AND A8J4P3 SHOULD BE ACROSS PINS 1 & 2. TO BYPASS RATE CONVERSION, A8J3P4 & A8J4P3 SHOULD BE ACROSS PINS 2 & 3.

THIS SCHEMATIC IS FOR 202200-5 VERSION OF HD GENERATOR

SIZE	CAGE	DWG NO	REV
D	52151	202201	D
SCALE N/A			SHEET 5

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

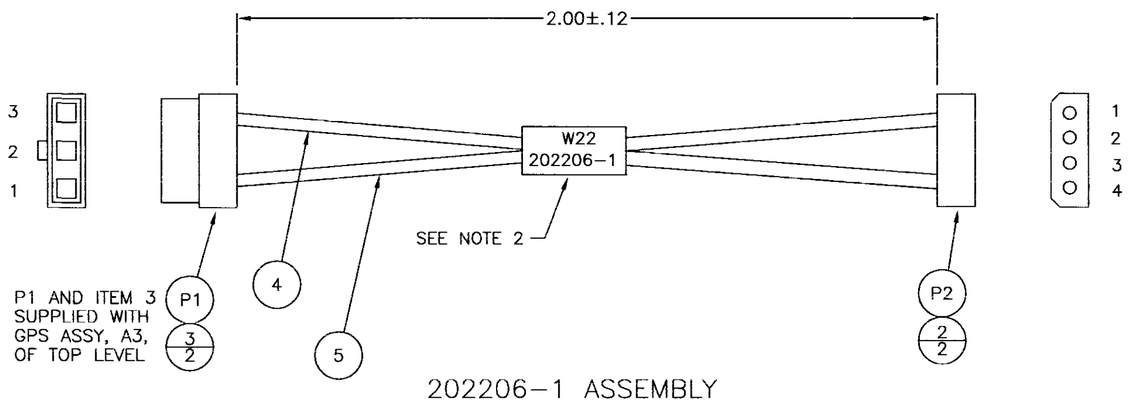
DWG NO. 202206 SH 1

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
1	ENGINEERING RELEASE		
–	PRODUCTION RELEASE		
A	REVISED PER ECN 07–0379N	07/10/03	NV

NOTES:

1. ASSEMBLE IAW PART MANUFACTURERS SPECIFICATIONS.
2. IDENTIFY PART USING KROY TOOL AND SHRINK TUBING, P/N 98–WT31–0342, OR EQUIVALENT, AS SHOWN.
3. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.



202206–1 ASSEMBLY

DIAGRAM

SEE SEPARATE PARTS LIST

PART NUMBER	NOMENCLATURE OR DESCRIPTION
202206–1	CABLE ASSEMBLY– GPS PWR (W22)

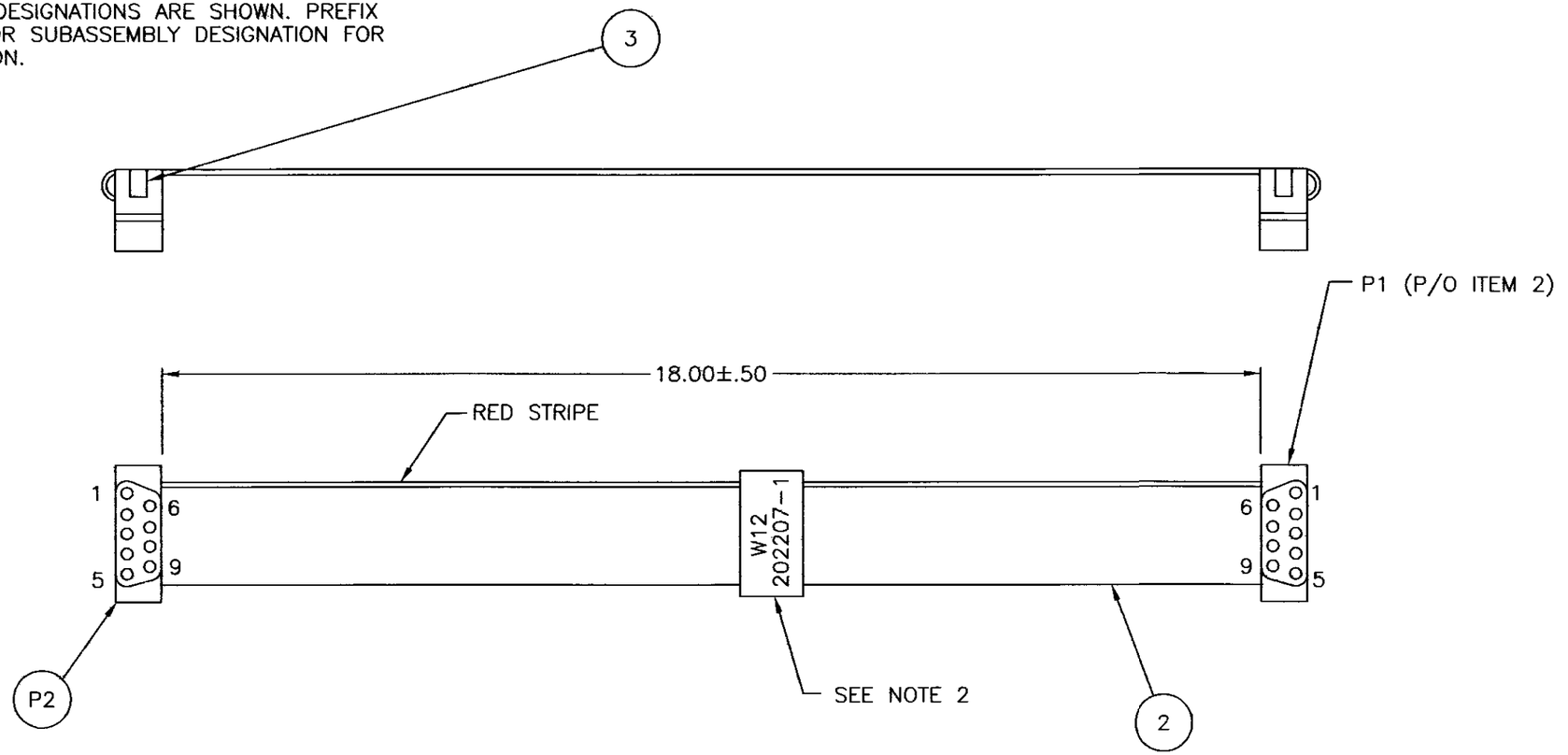
		UNLESS OTHERWISE SPECIFIED	DRAWN C ABBEY	DATE: YY/MM/DD 06/01/30	CONTINENTAL ELECTRONICS 4212 S BUCKNER DALLAS, TEXAS 75227 214-381-7161
		TOLERANCES 2 PL DEC ±.03 3 PL DEC ±.015 ANGLES ±1°	CHECKED		CABLE ASSEMBLY– GPS PWR (W22)
			MECH ENGR		
		MACHINED SURFACE FINISH 125	ELEC ENGR B WOLVERTON	06/01/30	
			PROJ ENGR		SIZE D / CAGE 52151 / DWG NO 202206
202200	9114	ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.	APPROVED D BROWN	06/01/30	SCALE N/A / SHEET 1 OF 1
NEXT ASSEMBLY	FO NUMBER	REMOVE ALL BURRS AND SHARP EDGES.			

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	ENGINEERING RELEASE		
—	PRODUCTION RELEASE	06/02/22	CA

NOTES:

1. ASSEMBLE IAW PART MANUFACTURERS SPECIFICATIONS.
2. IDENTIFY AND MARK PART USING LABEL, PART NUMBER 280-8001-010, OR EQUIVALENT.
3. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.



202207-1 ASSEMBLY

SEE SEPARATE PARTS LIST

202207-1	CABLE ASSEMBLY- GPS DATA (W12)
PART NUMBER	NOMENCLATURE OR DESCRIPTION

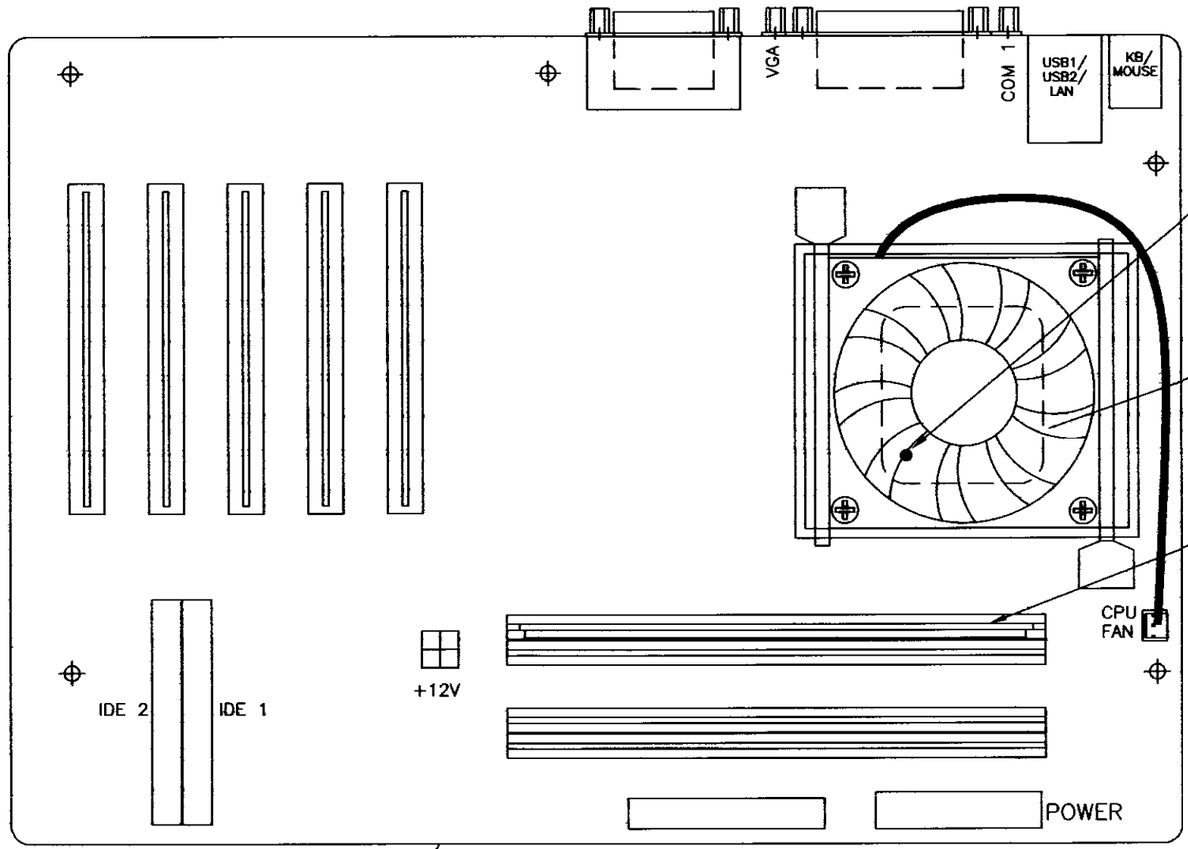
UNLESS OTHERWISE SPECIFIED	DRAWN C ABBEY	DATE: YY/MM/DD 06/01/30	CONTINENTAL ELECTRONICS 4212 S BUCKNER DALLAS, TEXAS 75227 214-381-7161	
TOLERANCES 2 PL DEC ±.03 3 PL DEC ±.015 ANGLES ±1°	CHECKED		CABLE ASSEMBLY- GPS DATA (W12)	
	MECH ENGR			
	ELEC ENGR B. WOLVERTON	06/01/30		
MACHINED SURFACE FINISH 125	PROJ ENGR			
ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.	APPROVED D. BROWN	06/01/30	SIZE C / CAGE 52151	DWG NO 202207
202200 / NEXT ASSEMBLY	9114 / FO NUMBER		SCALE N/A	SHEET 1 OF 1
REMOVE ALL BURRS AND SHARP EDGES.				

DWG NO 202207 REV 1

CEC FORM 386-1 REV B

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	ENGINEERING RELEASE		
–	PRODUCTION RELEASE	06/02/21	cjd



SEE SEPARATE PARTS LIST

NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.
2. HANDLE PER PCP–116.

202208–1	MOTHERBOARD ASSEMBLY
PART NUMBER	NOMENCLATURE OR DESCRIPTION

UNLESS OTHERWISE SPECIFIED	
TOLERANCES 2 PL DEC ±.03 · 3 PL DEC ±.015 · ANGLES ±1°	
MACHINED SURFACE FINISH 125	
ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.	
REMOVE ALL BURRS AND SHARP EDGES.	
DRAWN C ABBEY	DATE: YY/MM/DD 06/01/10
CHECKED	
MECH ENGR C ABBEY	06/01/30
ELEC ENGR B WOLVERTON	06/01/30
PROJ ENGR	
APPROVED D BROWN	06/01/30

202200	9114
NEXT ASSEMBLY	FO NUMBER

CONTINENTAL ELECTRONICS
4212 S BUCKNER
DALLAS, TEXAS 75227 214-381-7161

MOTHERBOARD ASSEMBLY

SIZE	CAGE	DWG NO
C	52151	202208
SCALE 1/1		SHEET 1 OF 1

DWG NO 202208 REV 1

CEC FORM 386–1 REV C

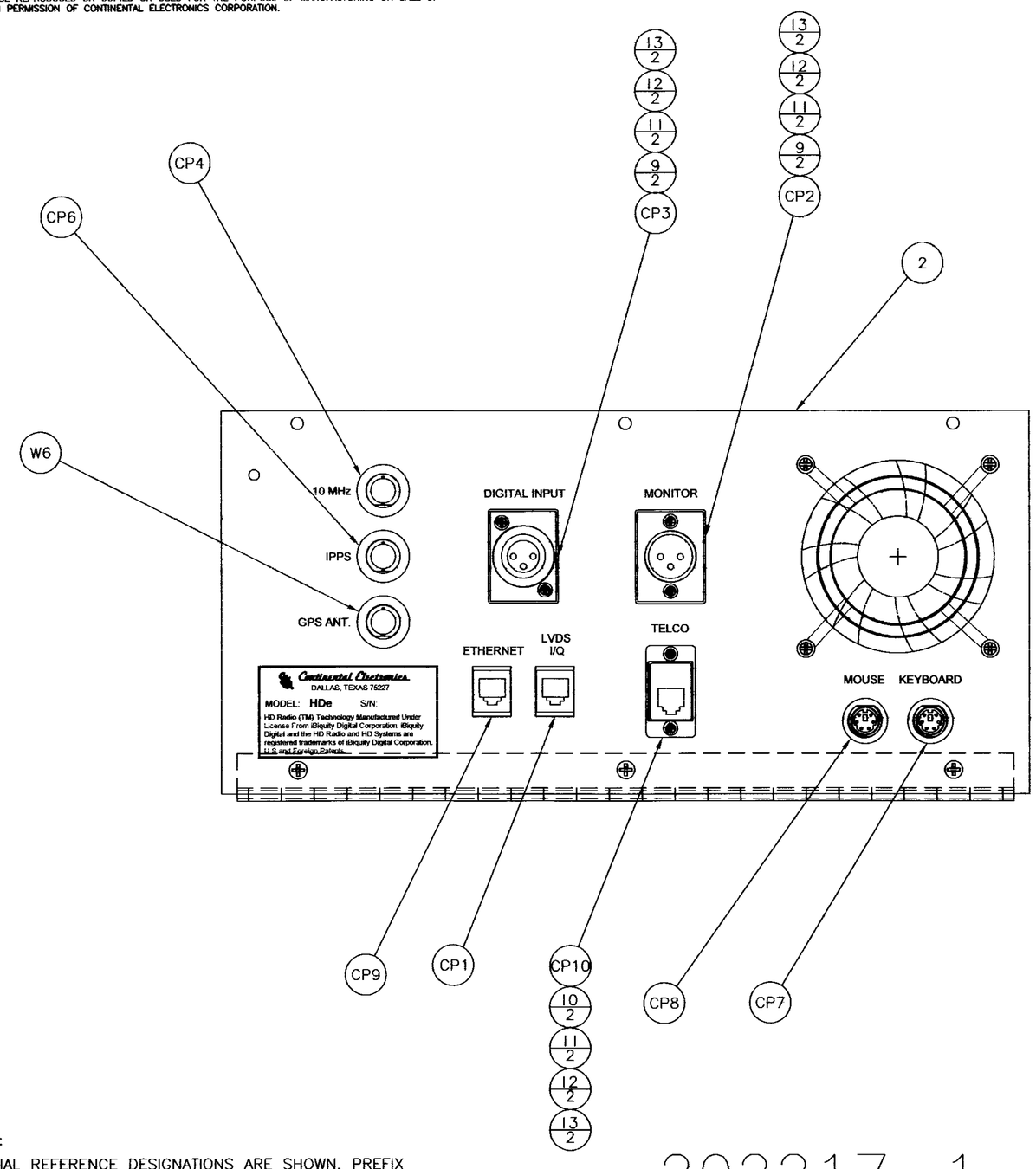
PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

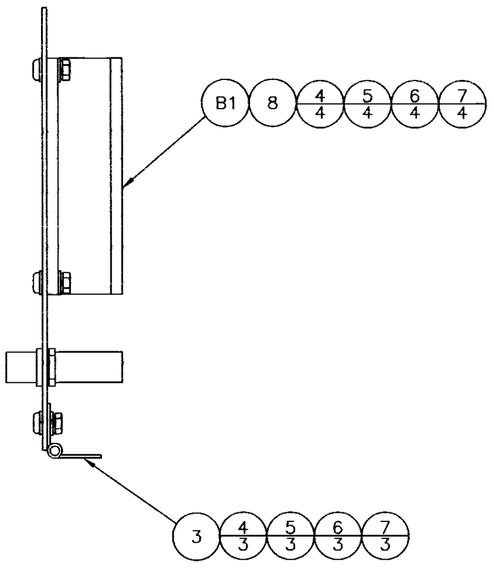
DWG NO. 202217 SH 1

2	1	SHEET	SHEET
C	C	REV	INDEX

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
–	MANUFACTURING RELEASE	06/02/21	CJA
A	REVISED PER ECN 06-0106N	06/03/24	TZ
B	REVISED PER ECN 06-0223N	06/08/17	TZ
C	REVISED PER ECN 06-0270N	06/09/23	cja





202217–1

NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.
2. HANDLE PER PCP–116.

SEE SEPARATE PARTS LIST

PART NUMBER	NOMENCLATURE OR DESCRIPTION
202217–2	REAR PANEL ASSEMBLY
202217–1	REAR PANEL ASSEMBLY

		UNLESS OTHERWISE SPECIFIED	DRAWN C ABBEY	DATE: YY/MM/DD 06/02/14
		TOLERANCES 2 PL DEC ±.03 3 PL DEC ±.015 ANGLES ±1°	CHECKED	
			MECH ENGR	
		MACHINED SURFACE FINISH 125	ELEC ENGR B WOLVERTON	06/02/22
			PROJ ENGR	
202200	9114	ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.	APPROVED D BROWN	06/02/22
NEXT ASSEMBLY	FD NUMBER	REMOVE ALL BURRS AND SHARP EDGES.		

CONTINENTAL ELECTRONICS
4212 S BUCKNER
DALLAS, TEXAS 75227 214-381-7161

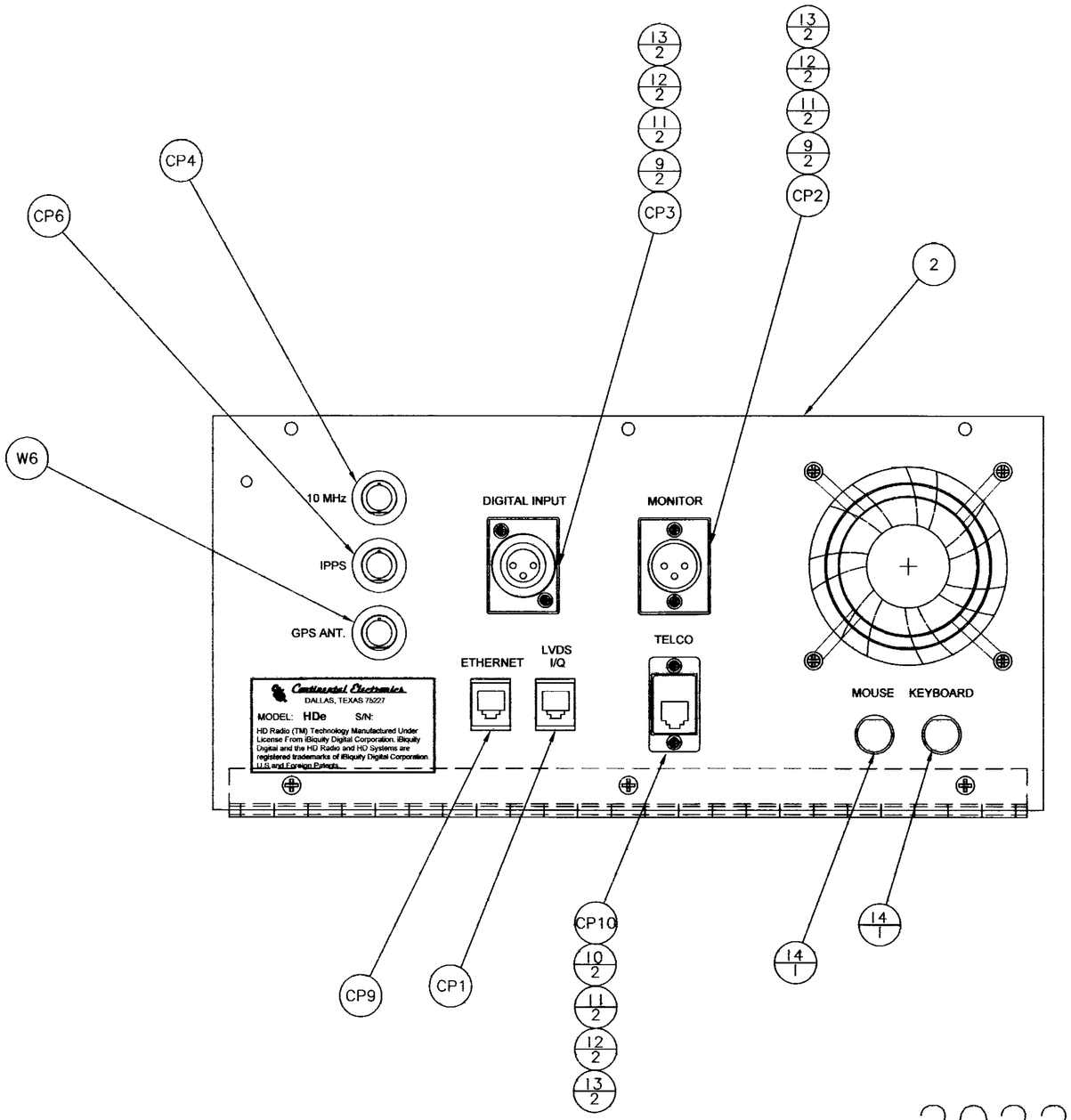
REAR PANEL ASSEMBLY

SIZE	CAGE	DWG NO
D	52151	202217

SCALE 1/1 SHEET 1 OF 2

CEC FORM 387-1 REV C

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.



202217-2

NOTES:

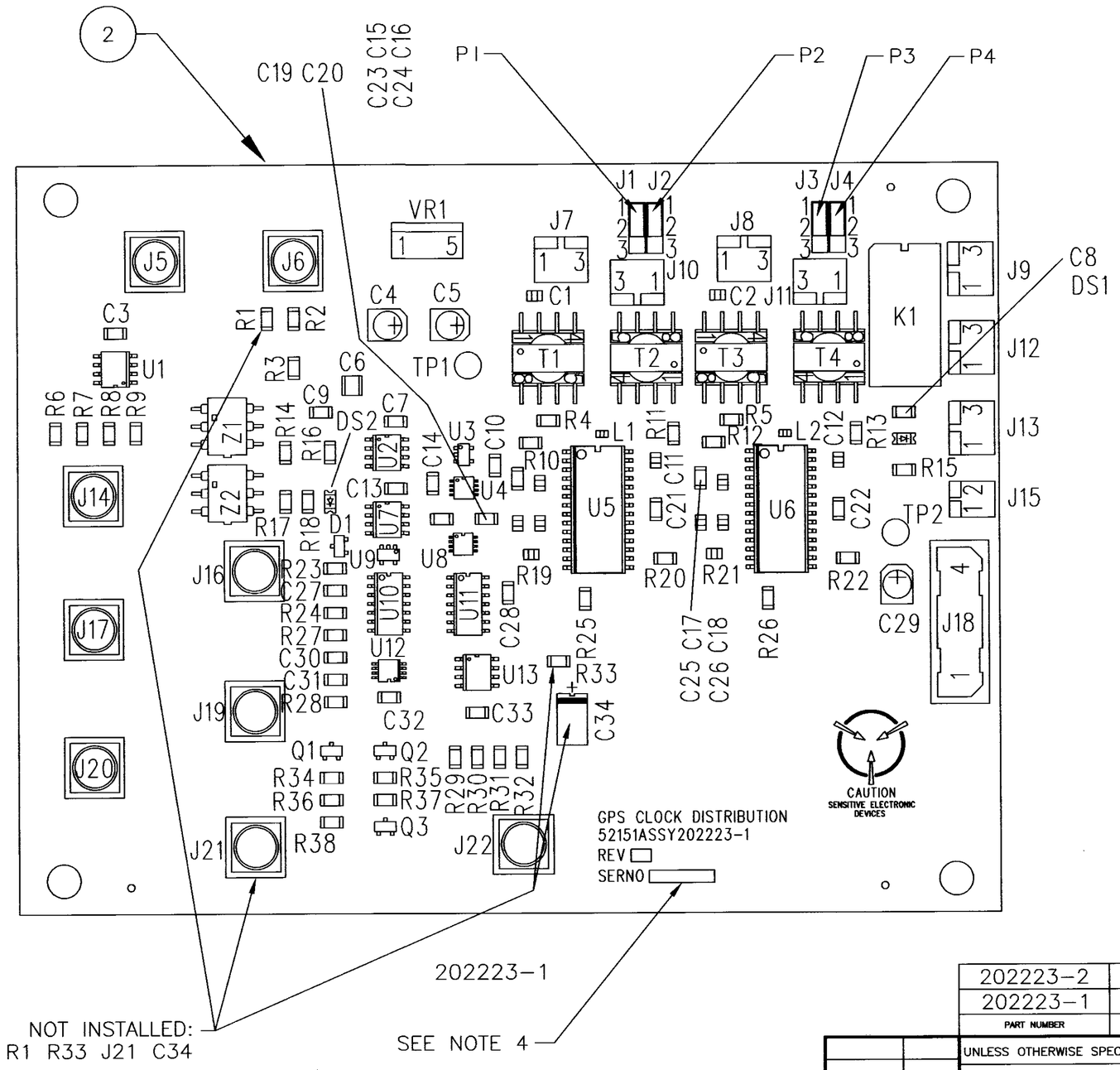
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.
2. HANDLE PER PCP-116.

SIZE	CAGE	DWG NO	REV
D	52151	202217	C
SCALE 1/1			SHEET 2

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

2	1	SHEET	SHEET INDEX
–	–	REV	

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	ENGINEERING RELEASE		
2	REDESIGNED	06-07-21	AS BW
3	REDESIGNED	06-08-14	AS BW
4	DOCUMENTED –2 VERSION, ADDED SH 2	06-10-25	AS
–	PRODUCTION RELEASE	06/11/21	cfa



NOTES:

1. CIRCUIT CARD ASSEMBLY SHALL BE IAW CEC "WORKMANSHIP MANUAL"
2. PARTIAL REFERENCE DESIGNATORS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION OR BOTH FOR COMPLETE DESIGNATION.
3. HANDLE IAW CED PROCESS SPECIFICATION 701–0066. (SEE CAUTION NOTE BELOW)
4. RUBBER STAMP REV AND SERIAL NUMBER PER CEC SPEC 701–0148.
5. MAXIMUM COMPONENT HEIGHT IS .863 (VR1).

CAUTION

ELECTROSTATIC SENSITIVE DEVICE
REMOVE ELECTROSTATIC PROTECTION
AT APPROVED PROTECTED WORK AREA ONLY

SEE SEPARATE PARTS LIST

PART NUMBER	NOMENCLATURE OR DESCRIPTION
202223–2	CIRCUIT CARD ASSEMBLY, GPS CLOCK DISTRIBUTION
202223–1	CIRCUIT CARD ASSEMBLY, GPS CLOCK DISTRIBUTION

202200	9114
NEXT ASSEMBLY	FO NUMBER

UNLESS OTHERWISE SPECIFIED

TOLERANCES
2 PL DEC ±.03 3 PL DEC ±.015 ANGLES ±1°

MACHINED SURFACE FINISH 125

ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.

REMOVE ALL BURRS AND SHARP EDGES.

DRAWN	A SAWYER	DATE: YY/MM/DD 06–06–01
CHECKED		
MECH ENGR	M WALKER	06–06–07
ELEC ENGR	B WOLVERTON	06–06–07
PROJ ENGR	D SPRAGG	06–06–07
APPROVED		

CONTINENTAL ELECTRONICS
4212 S BUCKNER
DALLAS, TEXAS 75227 214-381-7161

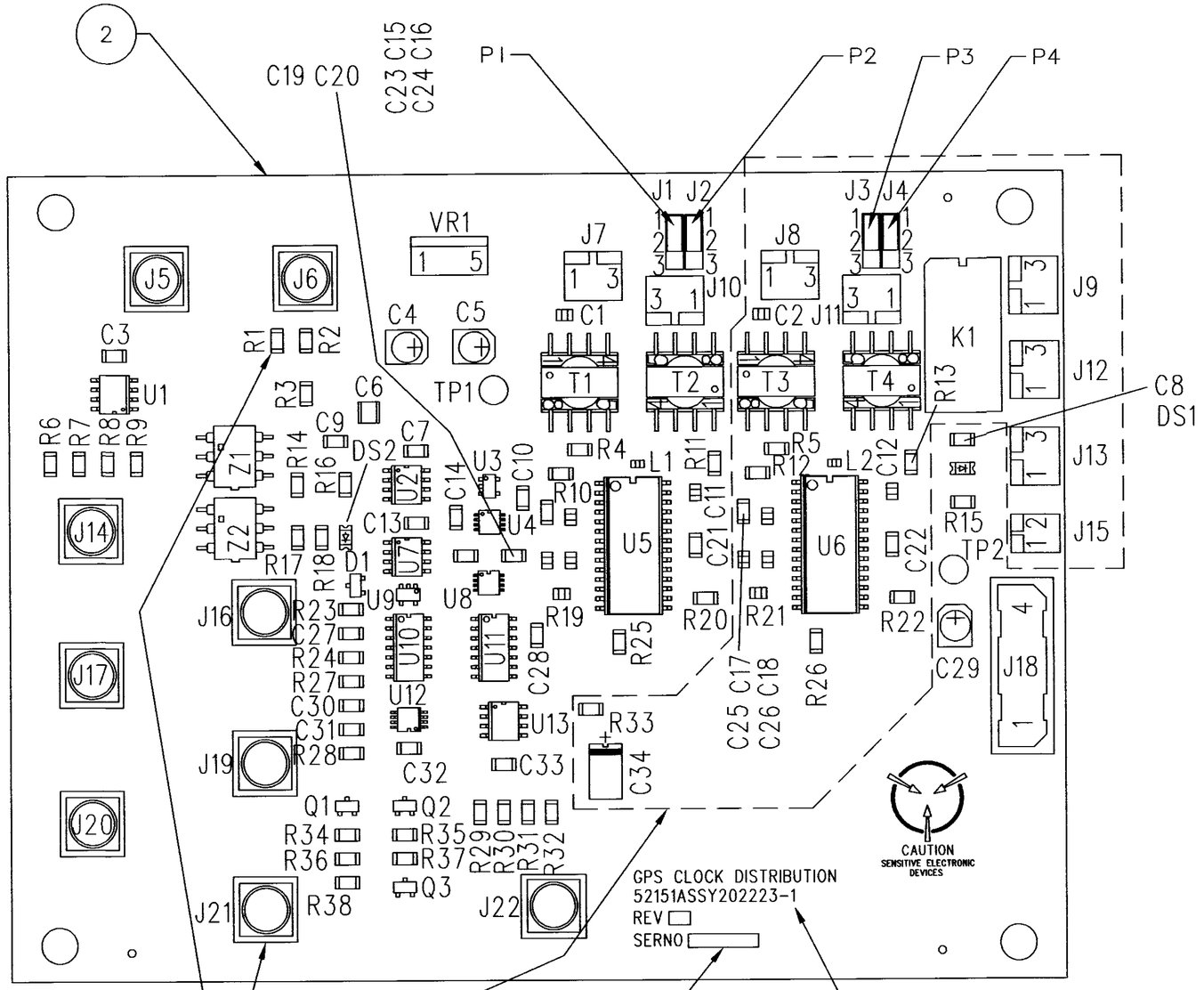
CIRCUIT CARD ASSEMBLY, GPS CLOCK DISTRIBUTION

SIZE	CAGE	DWG NO
C	52151	202223
SCALE 2/1		SHEET 1 OF 2

DWG NO 202223 SH 1

CEC FORM 386-1 REV B

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.



SIZE	CAGE	DWG NO	REV
C	52151	202223	–
SCALE 2/1			SHEET 2

DWG NO 202223 SH 2

CEC FORM 386-2 REV A

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

NOTES: UNLESS OTHERWISE SPECIFIED

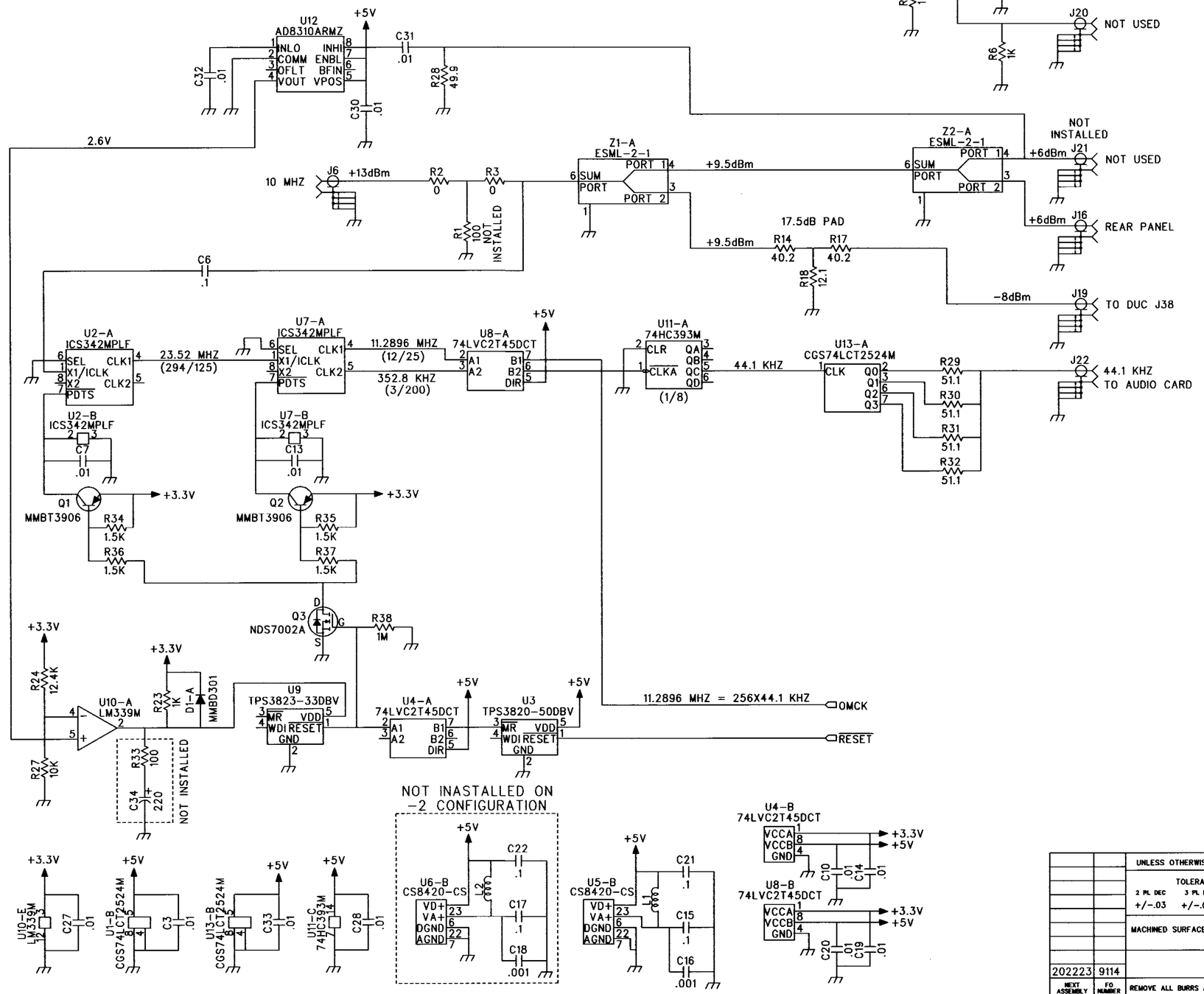
1. PARTIAL REFERENCE DESIGNATORS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION OR BOTH FOR COMPLETE DESIGNATION.
2. ALL RESISTOR VALUES ARE IN OHMS. ALL CAPACITOR VALUES ARE IN MICROFARADS.

DWG NO. 202224 SH 1

2	1	SHEET	SHEET
–	A	REV	INDEX

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
1	ENGINEERING RELEASE		
2	REDESIGNED	06-07-21	AS BW
3	SH 1, ADDED D1 Q1-Q3 R33-R38 AND C34. U9 WAS TPS3820-33DBV	06-07-21	AS BW
4	SH 1, VALUE OF R2&R3 WAS 12.1,R18 WAS 24.9,R14&R17 WAS 34, TEXT CHG'S	06-08-28	AS BW
5	SH 1 & 2, ADDED BOXED AREAS FOR –2 CONFIGURATION	06-10-25	AS
–	PRODUCTION RELEASE	06-11-24	CA
A	REVISED PER ECN 06-0404N	06-12-19	AS BW



UNLESS OTHERWISE SPECIFIED	DRAWN A SAWYER	DATE: YY/MM/DD 06/06/02	CONTINENTAL ELECTRONICS 4212 S BUCKNER DALLAS, TEXAS 75227 241-381-7161
TOLERANCES 2 PL DEC +/-.03 3 PL DEC +/-.015 ANGLES +/-1 DEG	CHECKED		SCHEMATIC DIAGRAM, GPS CLOCK DISTRIBUTION
MACHINED SURFACE FINISH 125	MECH ENGR M WALKER	06/06/07	
	ELEC ENGR B WOLVERTON	06/06/07	
	PROJ ENGR D SPRAGG	06/06/07	
	APPROVED		
202223 9114 NEXT ASSEMBLY / FO NUMBER	REMOVE ALL BURRS AND SHARP EDGES.		SIZE D CAGE 52151 DWG NO 202224 SCALE N/A SHEET 1 OF 2

CEC FORM 367-1 REV A

PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

OMCK 11.2896 MHZ = 256X44.1 KHZ

RESET

HD AES IN J7-1

J7-2

J7-3

J2-3 J2-2 J2-1 P1

J1-3 J1-2 J1-1 P2

C1 .1

T1 2_37246

R4 110

U5-A CS8420-CS

RXP RXN TCBLD PRO/C MUTE RMCK OMCK EMPH/U RERR RST TCBL FILT

TXP TXN OLRCK OSCLK SDOUT COPY DFC0 ORIG DFC1 AUDIO/V S/AES H/S

R25 47.5K

R19 1.6K

C23 .33

C24 .0047

C11 .1

R11 110

T2 2_37246

R20 47.5K

R10 47.5K

+5V

J10-1

J10-2

J10-3

HD AUDIO CARD INPUT

FM AES IN J8-1

J8-2

J8-3

J4-3 J4-2 J4-1 P3

J3-3 J3-2 J3-1 P4

C2 .1

T3 2_37246

R5 110

U6-A CS8420-CS

R26 47.5K

R21 1.6K

C25 .33

C26 .0047

C12 .1

R13 110

T4 2_37246

R22 47.5K

R12 47.5K

J11-1

J11-2

J11-3

TO FM AUDIO CARD INPUT

REAL TIME FM AUDIO

DELAYED

J12-1

J12-2

J12-3

FROM FM AUDIO CARD OUTPUT

W172DIP21 K1

FM AES OUT

J9-1

J9-2

J9-3

NOT ON PC BOARD

PHOENIX OUTPUT 13- 13+

J15-1 J15-2

AUTO SEL

REAL TIME

DELAYED

J13-1 J13-2 J13-3

NOT INSTALLED ON -2 CONFIGURATION

SIZE	CAGE	DWG NO	REV
D	52151	202224	–
SCALE N/A			SHEET 2

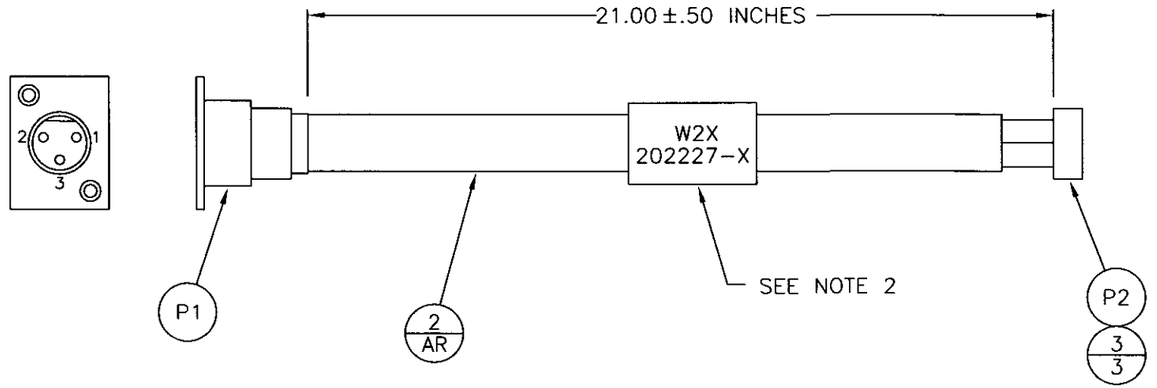
CEC FORM 387-1 REV A

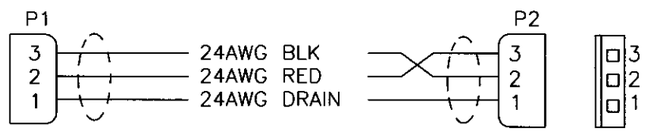
PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	ENGINEERING RELEASE		
2	CREATE -2	06/08/01	CJA
–	PRODUCTION RELEASE	06/11/21	cja

NOTES:

1. ASSEMBLE IAW PART MANUFACTURERS SPECIFICATIONS.
2. IDENTIFY PART USING KROY TOOL AND SHRINK TUBING, P/N 98-WT31-0342, OR EQUIVALENT, AS SHOWN PER CHART.
3. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.





DIAGRAM

202227-2	W28	202227-2
202227-1	W26	202227-1
PART NUMBER	LINE 1	LINE 2

SEE SEPARATE PARTS LIST

PART NUMBER	NOMENCLATURE OR DESCRIPTION
202227-2	CABLE ASSEMBLY, FM AES INPUT
202227-1	CABLE ASSEMBLY, HD AES INPUT

UNLESS OTHERWISE SPECIFIED	DRAWN C ABBEY	DATE: YY/MM/DD 06/05/19	CONTINENTAL ELECTRONICS 4212 S BUCKNER DALLAS, TEXAS 75227 214-381-7161
TOLERANCES 2 PL DEC ±.03, 3 PL DEC ±.015, ANGLES ±1°	CHECKED		CABLE ASSEMBLY,
MACHINED SURFACE FINISH 125	MECH ENGR C ABBEY	06/05/19	
	ELEC ENGR B WOLVERTON	06/05/19	
ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.	PROJ ENGR		
REMOVE ALL BURRS AND SHARP EDGES.	APPROVED D SPRAGG	06/05/19	SIZE C, CAGE 52151, DWG NO 202227, SCALE N/A, SHEET 1 OF 1

NEXT ASSEMBLY	FO NUMBER
202200	9114

DWG NO 202227 SH 1

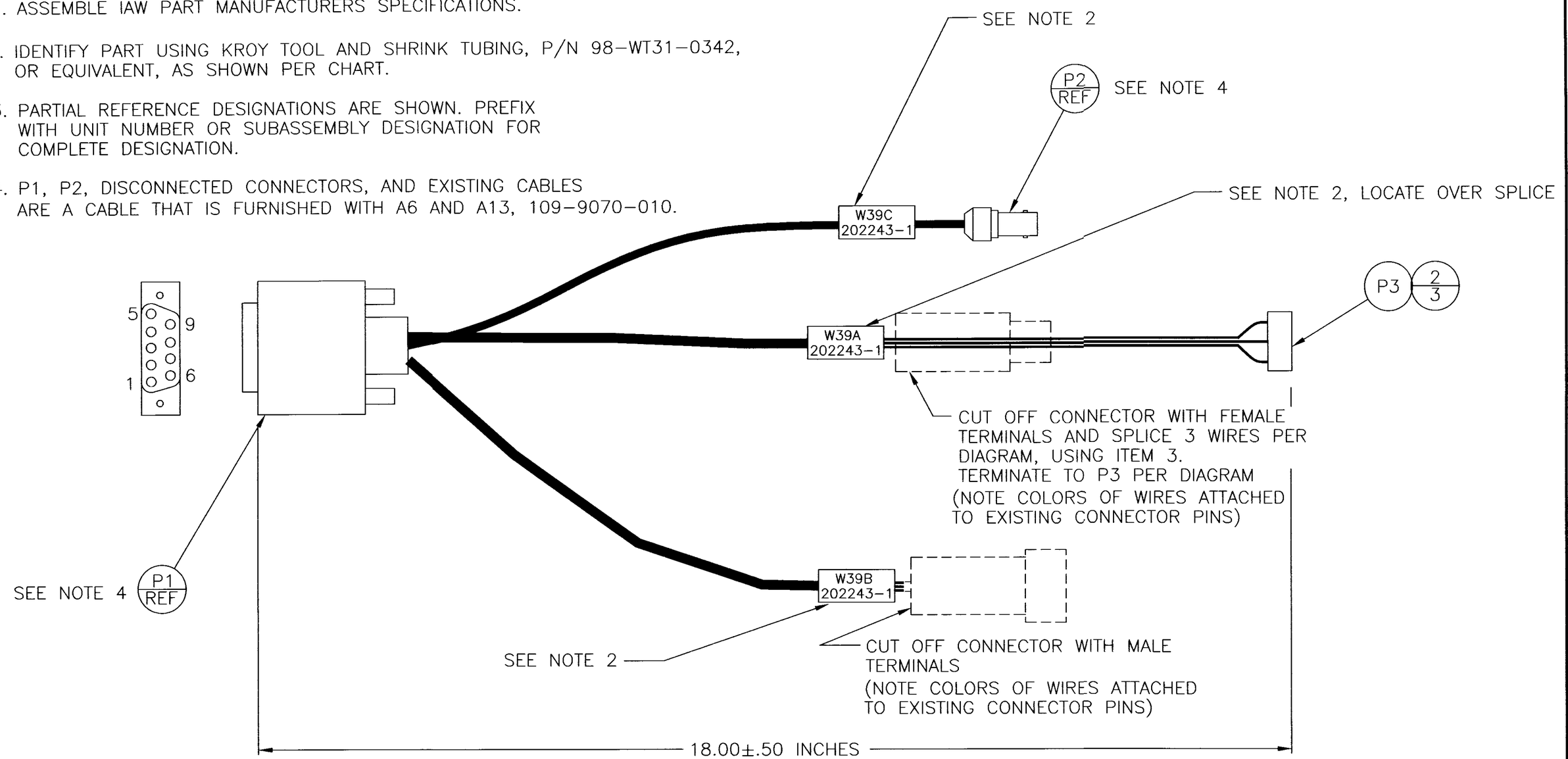
CEC FORM 386-1 REV B

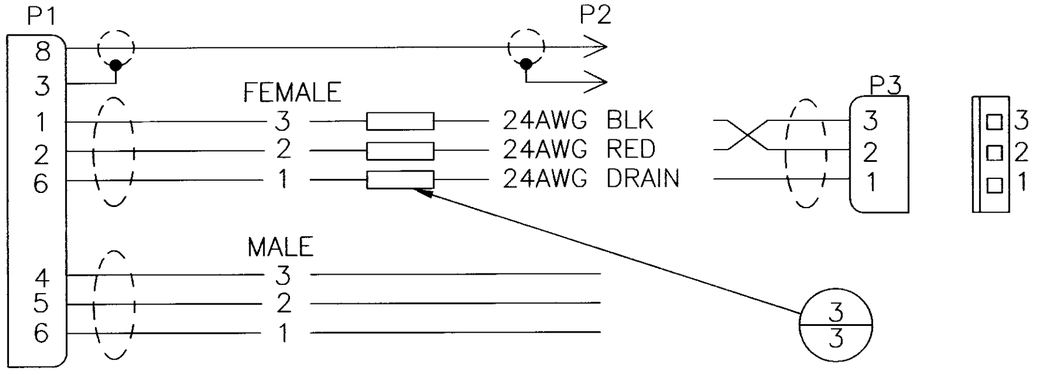
PROPRIETARY NOTICE: THIS DOCUMENT AND THE SUBJECT MATTER HEREOF ARE THE PROPERTY OF CONTINENTAL ELECTRONICS CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED FOR THE PURPOSE OF MANUFACTURING OR SALE OF APPARATUS EXCEPT BY WRITTEN PERMISSION OF CONTINENTAL ELECTRONICS CORPORATION.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	ENGINEERING RELEASE		
–	PRODUCTION RELEASE	06/11/21	cjd

NOTES:

1. ASSEMBLE IAW PART MANUFACTURERS SPECIFICATIONS.
2. IDENTIFY PART USING KROY TOOL AND SHRINK TUBING, P/N 98–WT31–0342, OR EQUIVALENT, AS SHOWN PER CHART.
3. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION FOR COMPLETE DESIGNATION.
4. P1, P2, DISCONNECTED CONNECTORS, AND EXISTING CABLES ARE A CABLE THAT IS FURNISHED WITH A6 AND A13, 109–9070–010.





DIAGRAM

SEE SEPARATE PARTS LIST

202243–1	CABLE ASSEMBLY, HD AES
PART NUMBER	NOMENCLATURE OR DESCRIPTION

202200	9114
NEXT ASSEMBLY	FO NUMBER

UNLESS OTHERWISE SPECIFIED

TOLERANCES

2 PL DEC ±.03 | 3 PL DEC ±.015 | ANGLES ±1°

MACHINED SURFACE FINISH 125

ALL DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH.

REMOVE ALL BURRS AND SHARP EDGES.

		DATE: YY/MM/DD
DRAWN	C ABBEY	06/05/19
CHECKED		
MECH ENGR	C ABBEY	06/10/19
ELEC ENGR	B WOLVERTON	06/10/19
PROJ ENGR		
APPROVED		

CONTINENTAL ELECTRONICS
4212 S BUCKNER
DALLAS, TEXAS 75227 214-381-7161

CABLE ASSEMBLY, HD AES

SIZE	CAGE	DWG NO
C	52151	202243
SCALE N/A		SHEET 1 OF 1

DWG NO 202243 SH 1